THE **FUTURE** OF **INTERACTIVE** ENTERTAINMENT

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EDGE

PLAYSTATION ■ NINTENDO 64 ■ PC ■ DREAMCAST ■ SATURN ■ ARCADE ■ INTERNET



TUROK2

WORLD EXCLUSIVE REVIEW

BIGGER THAN GODZILLA? BETTER THAN GOLDENEYE?


E



Following the appearance of *Tekken 3* and *Resident Evil 2* on previous covers of **Edge**, placing *Turok 2*, another sequel, on page one of this month's issue will probably be a source of consternation to some.

There is, in part, a practical consideration behind the decision: just as sequels increasingly dominate the charts, so they head up gamers' concerns. But there is a related issue: sequels are actually driving games forward.

As videogaming reaches wider audiences, the traits of other entertainment mediums are permeating it. Attracting attention to a new title is now as important as the business of creating quality games.

In Hollywood, big-name stars serve to bring audiences to cinemas. Another common solution is to turn an existing book into a movie. Without Nicolas Cage, Demi Moore or John Grisham, videogame publishers are attempting to back up big-budget projects with either licences (*Mission Impossible*) or the values of an established series (*Final Fantasy*). And it's surely preferable that videogames draw on their forebears for their kudos rather than relying on the successes of other industries.

There will always be fresh titles, of course, and **Edge** will be here to champion them, but increasingly publishers see them as loss leaders – the real money lies in the follow-up. There will always be poor quality sequels, too. But the best developers treat their progeny as their crown jewels. Nintendo, SquareSoft, id Software, Namco and Westwood know that their games' names are worth literally millions. Reputations can be ruined overnight.

It's better that millions of pounds are spent adding gameplay to *Quake* or *Turok* than on buying an identity from the makers of 'Titanic' or 'Lost in Space'. And it's better that a great sequel fixes the problems of the first game – and pays for its development – than if neither game were made at all.

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Voted magazine of the year
1997 InDin awards





WHAT DID SUPER MARIO 64 EVER DO FOR VIDEOGAMES?



page76



Cutting Edge

The latest news from the world of interactive entertainment

SEGA UNVEILS SONIC ADVENTURE

Sega's new console might not bear its name, but the company's famous mascot has returned

Dreamcast™

Just days prior to the official August 22 *Sonic Adventure* announcement in Japan, producer **Yuji Naka** had chance to present the game to **Edge** at Sega's European HQ in London. While cynics could argue that Sonic's time has passed, the blue hedgehog's power as a mass-market brand cannot be underestimated. Any company regrouping for battle needs a rallying point, and Sonic is an obvious choice for Sega.

Naka-san was reputedly disappointed with recent treatments of the Sonic character, including *Sonic R*. He conceded, though, that the 3D elements of the Saturn title were part of the evolutionary process in transferring the character into the third dimension. But that is where any similarities end. *Sonic Adventure* looks stunning. The game has been in development for 18 months, with the Sonic Team disassembling every aspect of the series, and using focus groups to detail public opinion of the character. *Sonic Adventure* has also been developed hand in hand with the Dreamcast unit, with Naka and his team working symbiotically with Sega hardware engineers preparing technical specs. In this respect, the game's gestation is similar to *Mario 64*, which bodes well for its overall quality.



Despite Sega's best efforts, these taster screenshots of *Sonic Adventure* were leaked onto the Internet prior to the official unveiling of the game



This promotional image for *Sonic Adventure* hinted that Sonic Team may have taken a new, darker approach. Witnessing the game proved otherwise

Sonic in action

The results of this close liaison are hugely impressive, and as a showcase of what the machine can do, *Sonic Adventure* is perfect. "We have pushed the Dreamcast as far as we can at present," Naka claimed, "and we are particularly pleased with the high-resolution graphics it offers." As he said this, the demo screen showed a helicopter roaring across an amazingly detailed cityscape before dropping a beautifully realised Sonic, who then ran full pelt down the side of a tower block. Although this was a Set 4 chipset demo, the true potential of Dreamcast's PVR2G chipset was clear.

The game uses a loose thirdperson perspective, and effortlessly shifts huge amounts of scenery as Sonic runs riot in a number of detailed locations. During the course of the demonstration, Naka-San looked on proudly as Sonic explored the massive 3D landscape, while the free-flowing camera system offered the best possible views. "The game area is so big," he smiled, "that we have used the cameras to indicate where the player should go. They will move where the player should be heading, but it won't feel as if the player is being restricted."

Sonic Adventure is split into 36

worlds, with the gaudy Greenhill Zones of the past replaced by Mayan ruins, dense jungles, and the aforementioned cities. Series bad guy, Eggman (renamed Robotnik for these shores), has awoken a shape-shifting beast called Chaos and is using it to wreak havoc. Sonic, ably assisted by series stalwarts, Amy, Tails, and Knuckles – along with two new heroes – pursue Robotnik to his airborne lair, whereupon a final battle with Chaos awaits.

Back to basics?

Naka's 30-strong Sonic team was keen to take the *Sonic* series back to its roots, and he puts the series' success down to outright speed. The final build of *Sonic Adventure* will run at 60fps, and despite its sprawling game maps, it's undoubtedly a member of the Sonic family. All the running and somersaulting of the past games has been recreated, but the freedom offered by the open play area makes old favourites such as the loop-the-loops appear refreshed. The team was aware, though, that more is expected of games nowadays, and as the title suggests there is more to *Sonic Adventure* than simply running, jumping and collecting rings.

"We have added puzzles and sub-games to the arcade elements," explained Naka. "Sonic can now talk to other characters, and each of the six heroes has individual skills essential in the game." The result gives an almost *Final Fantasy VII* feel to the game, with swooping cameras highlighting the conversations and key linking scenes. So did Square's game inspire such an addition? "I've been too busy to actually play any games," laughed Naka at this suggestion, "but as soon as *Sonic Adventure* is finished I plan to sit down and play as many as possible."

With that, the familiar tinkling of collected rings issued forth, as Sonic ran into a startling tornado effect. Sega will be hoping that this Dreamcast launch title is capable of kicking up as much of a storm itself.

YUJI NAKA: A SONIC SOUNDING

Edge talks to the man with a hedgehog in his heart

Edge: Sonic Team didn't produce a *Sonic* game for the Saturn, so why bring him back now?

Yuji Naka: First, after I created several *Sonic* games for the Mega Drive, I wanted to create a different world – which is why I worked on *NiGHTS*. Just at the end of *NiGHTS'* development, I learned about Project Dreamcast and I believed that Dreamcast could provide Sonic Team with the best quality *Sonic* game.

Edge: What were main aspects of past *Sonic* games you felt were essential for incorporation into *Sonic Adventure*?

YN: The speed of Sonic, and also variety within the game. The variety is probably the most important. We wanted *Sonic Adventure* to appeal not only to old users, but also for any users who may not have played a *Sonic* game before. For extra variety, we have also added six mini-games, and these can be played repeatedly. I want people to play these games many times, while they are working towards the main final objective.

Edge: Did creating *Sonic Adventure* in 3D cause any major development problems?

YN: Because Sonic runs very fast, I had to create a huge location – so I've spent a lot of time creating a big map which will take Sonic more than five minutes to run across! I also to had to focus on the detail of the 3D world, but a big, huge-scale map is the most important aspect of *Sonic Adventure*. I created the world first, and then I came up with, 'Well, why don't we utilise this map for other characters?' And then I thought that maybe he [Sonic] can approach others in the game rather than just running through this huge field. That's one of the key concepts in the game.

Edge: Each character has six episodes within the main scenario – do these interact so you can see them again but from a different character's perspective?

YN: Yes, when you play as Sonic and first meet Knuckles he'll try and attack you. You can then play as Knuckles. You then see the game from his point of view, and the plot will explain the reason why it happens. They also have different moves that allow them to tackle the levels in a different way. Knuckles can burrow for treasure, for example.

Edge: What sort of research did Sonic Team do for *Sonic Adventure*?

YN: We did a bunch of surveys on the characters. One reason was because we are going to introduce new characters to the game, and we wanted to survey those. The other element we were interested in was getting back to the original point of Sonic, so we did a survey of Sonic as well.

Edge: How far will the final code be pushing the Dreamcast technology?

YN: I am doing my best efforts to get the maximum performance out of the hardware, but in any game platform there must be a learning curve in game development. In the near future, when I get used to it, you will see more performance but at the moment I feel it is the best product getting the best performance out of the hardware.

Edge: The Dreamcast unit has impressively powerful sound capabilities. How are you using them?

YN: Rather than using electronic music like techno or something like that, we prefer to use 'live' music – something hot, funky and rock 'n' roll. Each character has his main theme or song, so there are five songs and one main theme for *Sonic Adventure*.

Edge: Finally, as one of Sega's most respected developers, have you any input in any of the other Dreamcast projects in development?

YN: Yes, I am almost like a team member of the Dreamcast project, so I have been in several meetings concerning internal projects. Right now, though, I am pretty busy contemplating the end of *Sonic Adventure*.





Naka-san has a tremendous development heritage, encompassing the original *Sonic* games and one of 32bit gaming's unsung heros, *NiGHTS*



Yuji Naka, clearly pleased that work on *Sonic Adventure* has almost reached completion

Software update

Aside from *Sonic Adventure*, an unofficial source claims that Sega has over 90 Dreamcast titles in either first- or secondparty development. These are in addition to the multiple games underway at thirdparty companies such as Acclaim, Infogrames and Core.

Among those considering buying into Sega's dream is Panasonic Wondertainment, a division of sometime M2 backer Matsushita. The parent company was at one stage in the running to produce a DVD drive for the Dreamcast unit, while Wondertainment is keen to utilise the console's modem. A port of PC title *Wizardry* is also on the cards.

Meanwhile, Dreamcast's coin-op relative Naomi is on course for an appearance at mid-September's JAMMA show. Smaller arcade operators are finding it hard to make the super-expensive Model 3 system (as used in *Sega Rally 2*, *Virtua Fighter 3*, etc) pay its way. Naomi will be a much cheaper coin-op format – and rumours persist that it will be even more powerful.

PLAYSTATION 2 ANNOUNCEMENT IMMINENT

With its console dominant across the globe, Sony treads carefully with a successor



SCEE's Chris Deering refuses to be drawn on the subject of PS 2

Anticipation that Sony will finally confirm the existence of a PlayStation successor is rapidly mounting. With SCEI's Teruhisa Tokanaka revealing to America's *Business Week* magazine that DVD is being seriously considered for the new console, an official announcement is drawing closer.

In addition, PlayStation 2 dev kits are rumoured to be in the hands of selected thirdparties, and in **E**62, respected Sega of Europe CEO Kazutoshi Miyake stated that he expected Sony's response to the new Dreamcast console to come within the next two months.

When approached to comment on the existence of the PlayStation 2 technology, SCEE president **Chris Deering** was non-committal: "Sony engineers are constantly working on new technologies. PlayStation will inevitably be replaced at some point, and we know that developers, retailers and many consumers are very interested to see what such a product will comprise. However, there is nothing to report at this stage."

Sony is in a delicate position. Although European PlayStation sales have recently passed ten million units, the prestige of technological leadership has been squarely in Sega's court since the Dreamcast announcement. If the PlayStation succeeds long-term as the mass-market player it has become, it will be the first videogame console ever to do so. Technology moves on, and so do popular tastes – something the switch to polygon-based graphics has dramatically underlined. Clearly, Sony must at least match its competitors' technological advances, and if history is anything to go by, it will surpass them.

PlayStation 2 power

According to selected videogame companies **Edge** has spoken to, PlayStation 2 dev kits point to several key innovations. Tokanaka's mention of DVD forming the basis of the new console's storage system is thought to be fact, but far more significant are the increasing rumours that PS 2 will offer hardware curve rendering. Although many had predicted that Sony's new machine would draw with NURBS rather than polygons, it's now believed that such a generational leap is not possible.



Sony's presence at last year's ECTS took a subtle approach

As detailed on pages 58-65, NURBS are essentially a method of drawing triangles with curved rather than straight edges. Curve rendering (also known as tessellation) sketches the outline of an object before filling in with as many triangles as necessary. Leading-edge PC titles such as Shiny's *Messiah* and Argonaut's *Kanaan* (**E**63) are already using the technique in software, and powerful CPUs – including Dreamcast's – are more than capable of drawing with curves. If PlayStation 2 does have tessellation built into its hardware, it will simply be able to render more curves than Dreamcast, but won't offer a new and distinct capability over its rival.

While Sega was in no position to delay its announcement of Dreamcast (and, it could be argued, it had no need to), Sony has the much harder task of effectively making its current hardware obsolete (through announcing PlayStation 2) while it is at the peak of its life cycle. As any PC owner will vehemently attest, few things shatter brand loyalty more effectively than the replacement of a 'new' machine within a few months of its purchase. The 18 million new PlayStation owners that SCEI recently forecasted for the '98-'99 period are unlikely to take similar news kindly.

Black belt loose ends

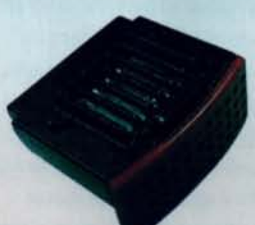
On August 4, 3Dfx announced that nearly 11 months of legal wranglings with Sega, NEC and Videologic had been successfully resolved. San Jose-based PC-accelerator-card manufacturer 3Dfx had been hotly tipped as the potential graphics hardware supplier for what became Dreamcast. Its technology was part of Sega of America's failed contender, Black Belt.

Death of the 64DD?

Originally due for release as part of the 64DD package, Nintendo's 4Mb RAM add-on (below) is now set to appear as a standalone peripheral. The immediate conclusion to be drawn is that the 64DD has been cancelled – at least as a western release. While pricing for the pack has yet to be set, a £20 RRP seems possible (and prudent if it's to sell in any quantity – it must be priced as an impulse purchase) given the recent worldwide plummet in RAM costs.

In the face of Dreamcast's imminent appearance, the RAM offers Nintendo an opportunity to raise the capabilities of its machine. Once installed in the console, the extra 4Mb allows N64 titles to run in higher resolutions up to 640x480. *Turok 2* is the first game to support the device, and **Edge** can report that it makes a remarkable difference to the appearance of the title. Gone is the slightly muddy look that has plagued so many N64 titles, bringing the quality nearer to that of PC accelerated titles (all of the *Turok 2* screenshots in this month's review use the RAM add-on). The PlayStation looks decidedly lo-fi in comparison.

If prices can be kept low, Nintendo could have a winner on its hands (and egg on its face if the 64DD really is cancelled). Games will continue to run in the standard resolution without the pack – it simply offers those Nintendo 64 owners with the 4Mb unit an enhanced gaming experience, and their console a fighting chance against fresh opposition.



iMac Attack

Apple is loudly trumpeting the massive preorders it has received for its stylish new iMac. Aimed at home users, the iMac is powered by a 233Mhz G3 processor and is being touted as a viable games platform. However, the machine's lack of a PCI card slot makes the installation of 3Dfx cards impossible. As far as gamers are concerned, Apple may have brushed the surface of success yet again.



LARGEST EVER **ECTS** ATTRACTS BIG GUNS

European Computer Trade Show will push some 1,000 games at attendees

With the videogames industry booming, this year's ECTS, which runs from September 6-8 at London's Olympia, promises to be the biggest yet.

Potential highlights include nearly-complete versions of *Zelda 64* and *Metal Gear Solid*, plus the first attendance by Shigeru Miyamoto, and demos of Project X and Dreamcast behind closed doors.

Barely recovered from May's American E3 Expo, **Edge** is prepared for a slight feeling of *déjà vu* on hitting the show floor. ECTS seldom provides much fresh fodder for those who've visited the extravaganza that is E3, although the chance to compare the latest versions of promising games can prove essential.

A strong presence from Nintendo – both US president Minoru Arakawa and chairman Howard Lincoln will join Miyamoto-san – is perhaps the most surprising news so far. The Euro push follows a recent developers' conference in Rome at which Nintendo urged European codeshops to reconsider developing for the format.

Meanwhile, **Edge** believes both Dreamcast and Project X will be tucked away at Olympia. With nearly all of the details regarding Sega's new machine finally revealed, speculation now turns to the VM Labs stealth project. Expect a full report in next month's issue.



Shigeru Miyamoto is set to make his first ever appearance at ECTS

Legend of Zelda 64 (N64)
Edge waits for no November release date
Soul Reaver (PlayStation)
The dark side of *Tomb Raider*
Perfect Dark (N64)
Forget *Mission: Impossible*. **Edge** is after the real deal
Jet Force Gemini (N64)
Will Rare's cute-styled blaster be in playable form?
Donkey Kong World (N64)
Nintendo's much-loved game is tipped for an unveiling via Rare
Outcast (PC)
It's slipped its release date. **Edge** will slip by the stand
Black and White (PC)
How is Molyneux's realtime strategy game fleshing out?
Metal Gear Solid (PlayStation)
So very near, yet so far
Galleon (PC)
Life after Lara, or that sinking feeling for the guys behind *Tomb Raider*?

GAMES INDUSTRY GORGES ON ITSELF

Westwood and Microprose the latest to be plundered by the big boys

After months of speculation, two of PC gaming's most respected stables have new owners. Toy giant Hasbro aims to buy Microprose, while the interactive entertainment industry's largest player, Electronic Arts, has plundered Virgin Interactive for its thirdparty developers, including the acclaimed Westwood Studios.

Microprose's future has been uncertain since late last year, when an acquisition attempt by GTI fell through. The deal with Hasbro – which at the time of writing is yet to be finalised – values Microprose at some $70m. It's thought the deal will benefit both parties, and bring new fans to Microprose's heavy-duty PC series like *X-Com* and *Mechwarrior*. Hasbro will exploit Microprose's excellent presence in Europe, while seeking to extend the developer's games beyond the PC platform.

The Virgin deal is more complicated. Virgin's parent company, Viacom, has sold the company's thirdparty studios to EA for some $123m. The jewel in the crown is undoubtedly the blue-chip developer Westwood Studios, which created the best-selling *C&C* games, not to mention the critically acclaimed *Dune* and *Lands of Lore* series. Crucially, Westwood's founders, Louis Castle and Brett Sperry, have agreed to remain at Westwood for at least five years. Other thirdparty developers acquired by EA include Paradox (working on S&M-tinged beat 'em up *Thrill Kill*) and Image Space (currently developing *Sports Car GT*). Sadly, the once-mighty Virgin appears to have been left as little more than a shell wrapped around a catalogue of old games.

The consolidation of the industry shows no signs of abating. Earlier this year, the unfancied Take 2 swooped in the acquire the assets of fashionable BMG Interactive, while The Learning Company acquired Broderbund (the publisher behind *Riven* and the forthcoming *Prince of Persia 3D*). Meanwhile, as **Edge** goes to press, a cloud of uncertainty hangs over erstwhile PlayStation developer Psygnosis, with Eidos rumoured to be heading up the potential suitors.



Westwood CEO, Brett Sperry: **"We're delighted to be partnering with Electronic Arts. We were courted by many companies, but in the end we knew EA would provide us with the support we need."**

NCL ready to roll?

Along with *F-Zero X* and *Wave Race 64*, *1080° Snowboarding* nestles among the N64's racing game elite. Strong rumours concerning a follow-up title have surfaced, all of which indicate that some form of skateboarding game is in the works at NCL. Given that both Atari and Sega have succeeded in creating skating titles, and that *1080°* was terrific, hopes are high.



NEO GEO POCKET: THE DIFFERENCE?

As Nintendo refreshes the best-selling Game Boy, a potential rival emerges

SNK has release the first pictures of its forthcoming Neo Geo Pocket games system, to be launched in Japan in late October. Related to the actual Neo Geo in little more than name, the 74x122x24mm unit (Nintendo's Game Boy measures 134x80x22mm) features a 16bit CPU, 16K of RAM and an eight-shade monochrome screen capable of 160x152 pixel resolution. The Pocket is controlled by control 'stick' rather than a D-pad, and is claimed to run for 20 hours on a set of AAA batteries. Little is known about its rumoured Dreamcast compatibility.

Given that Nintendo's imminent Game Boy Colour offers a potent 56-colour display coupled with a massive back catalogue of titles, SNK's new device could be a case of too little, too late. However, its range of launch titles contains versions of a number of classic Neo Geo titles, which may be enough to generate reasonable consumer interest – at least in the short term.

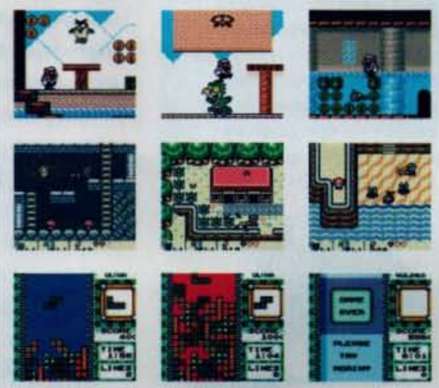
Neo Geo Pocket launch titles



King of Fighters R1	Fighting
Merochan Agenda	Simulation
Tsunagete Pon	Puzzle
Tennis	Sports
Baseball Stars	Sports
Neo Geo Cup '98	Sports
Shogi no Tatsujin	Board
Dokodemo Mah Jong	Board

Game Boy Colors up

With its release drawing close, the first pictures of Game Boy Color games have been distributed by Nintendo. The display is divided into two planes, with 32 hues for backgrounds and 24 for sprites. From top to bottom: *Wario*, *Zelda* and *Tetris* are colourfully updated (along with Nintendo's profit margin).



EXPLOSIVE 3D POWER

Is Riva TNT set to blow up Voodoo 2?



John Carmack claims that TNT allows for the generation of around 3m polys/second

Creative Technology will be the first manufacturer to supply a 3D card based around the upcoming nVidia Riva TNT chipset. One of the most eagerly awaited 3D technologies of 1998, nVidia says the Riva TNT architecture can deliver up to eight million polygons per second.

Like 3Dfx's Voodoo 2, the Riva TNT architecture features two pixel-processing units and a powerful 32bit graphics pipeline. Peak polygon fill rate is some 250 million pixels per second. Designed for DirectX and OpenGL, the prototype chipset proved capable of handling an impressive 1600x1200 at 30fps with ease at this year's E3. The Creative Technology card, teamed with 16MB of SDRAM, could be the most powerful consumer card available. There's no news of a UK release date or price, but the card is set to ship in the US at $199.

An early, lacklustre entrant into the 3D accelerator market, nVidia hit its stride with the Riva 128. A powerful 2D/3D solution, the Riva 128 was the first to excel at supporting DirectX rather than a proprietary API, such as 3Dfx's Voodoo/Glide combination.

nVIDIA

ECU GRANTS FOR GAMES DEVELOPERS

Brussels seeks to give new multimedia projects a hand-up

Starting this month, game developers can apply to the European Union for grants to help them develop projects.

The European Media Development Agency (EMDA) is launching a 'media programme' which aims to promote the development of commercial audiovisual projects. While doubtless conceived with the struggling multimedia industry in mind, EMDA stresses that game development is equally qualified for grants. With an annual budget of 4 million ECUs (about £2.7million), the agency is definitely playing hardball. It aims to support both existing multimedia companies and individuals from other disciplines seeking to join the industry.

Two levels of funding are available to potential game developers. The first is a 20,000 ECU (£13,600) subsidy to enable the applicant to develop the concept on paper. Second-level support, which may be as generous as 250,000 ECUs (£170,000), is offered to companies which can prove they have developers or publishers willing to market and sell their products. This award is refundable once the game goes to market.

Obviously, despite what *Sun* readers might believe, the European Union doesn't hand money out to just anyone. Both grants are awarded only after rigorous vetting and, despite the large budget, it's likely that only a minority of applicants will be able to benefit from the assistance. For more details, call EMDA on 0171 226 9903.



Despite portraying certain Edge staffers after a night out, *Isabelle*, by Poisson Volant, is actually an EMDA project

PRESCREEN

EDGE PREMIERS INTERACTIVE ENTERTAINMENT'S SHARP DRESSING DEBUTANTES

Exploring face values

The real beauty of videogame graphics development

There's more to game graphics than meets the eye. While the wounds left by early-to-mid-'90s interactive movies run deep, it's worth keeping a sense of perspective. Improvements in graphics technology can add more to games than a bloodier death or a sexier smile.

Graphical advances that truly change games tend to be generational. Consider the introduction of colour into games machines: the ghosts changing colour in *Pac-Man*, for instance.

Better bitmapping, improved sprite support, hardware scrolling, and, most obviously, the leap to filled polygons have all had similar effects. Today's leading games are not trilinear filtered versions of *Pac-Man* or *Pong*.

Sceptical? Consider *Tomb Raider III*. *Tomb Raider* belongs to a tradition dating back to *Atic Atac* on the Spectrum and *Impossible Mission* on the C64. But cross the top-down exploration of the former with the platform action of the latter and you'll still need a further leap of imagination – and technology – to arrive at Core's classic.

What about *TOCA 2*? In the early '80s, if you wanted to make a racing game you'd have had to make do with crude brown poles for trees and a logo pointing out that it wasn't *Pole Position*. Improvements in graphics have brought undulating tracks and cars that splatter with mud and clearly show damage sustained.

Interstate '82 features versions of real cities like Las Vegas. It's not just the cruise past The Golden Nugget (or its fictional equivalent) that's important – as a player, such free-roaming driving games now force you to think in terms of a 3D city. The enemy might come from a multitude of directions or might be moving away from you. These improvements in graphics fundamentally alter the 'game space' – the environments and the sheer stuff out of which developers can make games. And that's what makes the techniques described in the feature on page 58 so exciting.

It might seem that the last thing needed right now is prettier graphics. But imagine if NURBS enable developers to create believable human faces – with expressions. This won't mean merely a prettier Lara. It's going to mean in-game characters who you read for traces of bluff, or who reach out to you with real expressions of sorrow. Elsewhere, 'digital sampling' techniques will fill game environments with objects that can be picked up, put down or smashed against walls. Again, it's not just going to be visually satisfying. It's going to mean the first game to include a bar-room brawl that half approximates real life...







All apples from the same tree? Ultimate Play the Game's *Atic Atac* (ZX Spectrum), Core's *Tomb Raider* (PlayStation) and Warp's *D2* (Dreamcast) trace graphical developments in game worlds

Edge's most wanted

The latest games on **Edge**'s hot list









Perfect Dark	Sonic Adventure	Final Fantasy VIII	Giants
(N64) Rare	(DC) Sega	(PS) SquareSoft	(PC) Interplay
The challenge is on. With *Turok 2* proving a vast improvement over the original, **Edge** can't wait to see what the former Golden crew can do.	Having had a taste of Yuji Naka's first Dreamcast title, **Edge** awaits Sonic's 128bit rebirth with relish, and is hoping for *Super Mario 64*, Sega-style.	The new 'non-deformed' characters may not be to the liking of die-hard fans of the series, but every other element in this sprawler should delight.	Developer Planet Moon's approach (a kind of 'slap it together' mentality) is laudable in these days of corporatedom; the results should be, well, *interesting*

Index

PRESCREEN ALPHAS

NINTENDO'S GOLDEN CHILD LEADS THE PACK ONCE MORE...

LEGEND OF ZELDA: OCARINA OF TIME

FORMAT: **N64** DEVELOPER: **NINTENDO**























Yes, more screenshots of possibly the most eagerly anticipated title in videogaming history as both Japanese and US releases approach rapidly, just in time to top the Christmas charts. Several examples of the kind of tasks facing players are illustrated, such as challenging a horse breeder to a race around his ranch (left), and an ocarina-playing duel (far left, top to bottom). Also, visual proof that Link gets to meet his Linkette childhood friend later on in the game, when both are a little less innocent (above left and above).

GAUNTLET LEGENDS

FORMAT: **ARCADE** DEVELOPER: **ATARI GAMES**











Atari Games' arcade reworking of its classic '80s top-down adventure should also make it to the PlayStation and Nintendo 64. Gameplay remains familiar, with the four main characters – each now boasting a special move or spell – having to face polygon-based versions of their old adversaries. New power-ups include three- and five-way shots plus X-ray vision, while the game is divided into four worlds with two final boss levels.

RIDGE RACER TYPE 4

Mere hours before **Edge**'s deadline, images of Namco's fourth PS instalment from one of the most popular racing series appeared on the company's Website. Ditching the vividly coloured world of its predecessors, *RR4* offers a more realistic approach, akin to *Gran Turismo*. Similarly, over 300 cars are promised with racing taking place on eight tracks. The oneplayer game features a Grand Prix mode where players are hired to compete in successive races once they've finished setting up their vehicle.

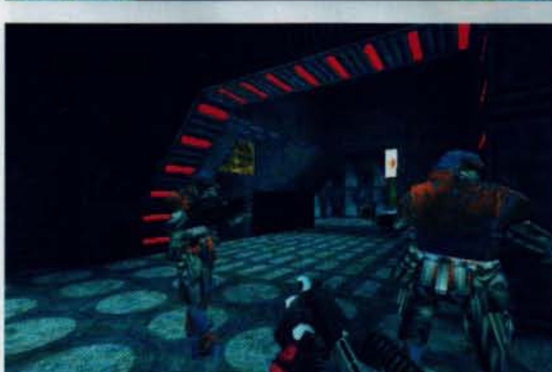




SHOGO

FORMAT: **PC** DEVELOPER: **MONOLITH**









Inspired by *Unreal* and *Quake II* rather than sluggish sims such as *Heavy Gear* and *Mech Warrior*, *Shogo* is a new take on the mech genre. Nipping about in a 30-foot-high mech suit, you'll strafe as nimbly as in any firstperson shooter, with the extra bonus of an anime-influenced storyline. Brilliant, context-sensitive DirectMusic tops off the cinematic overtones.

HERETIC 2

FORMAT: **PC** DEVELOPER: **RAVEN**

Utilising the increasingly unfashionable *Quake II* engine, *Heretic 2* is the latest in Raven's series that began with *Hexen*. In this iteration the player must discover a cure for an all-pervasive disease before it kills him and his countrymen. As before, you have access to numerous weapons and spells in this medieval adventure that now operates in the thirdperson.











X-MEN

FORMAT: **PLAYSTATION** DEVELOPER: **SYROX**









While Capcom's X-Men-related fighting games are well-known, this new 3D interpretation of the Marvel Comics license is something of an unknown quantity. However, *X-Men* is a good-looking proposition, featuring Wolverine, Iceman, Mr. Sinister, Storm and other characters.

MYTH 2

FORMAT: **PC/MAC** DEVELOPER: **BUNGIE**







Bungie has left *Myth*'s graphic engine pretty much alone, although polygonal trees and buildings now join the excellent troop sprites. *Myth* was hamstrung by key flaws and Bungie is tackling these head-on with a more detailed terrain mesh (improving the terrible soldier pathfinding), a better camera, plus a command bar to ease the management of units.

SWING

Although hardly the next title to be regarded as the definitive 3Dfx showcase, German publisher Software 2000's PC and PlayStation puzzle game borrows elements from classic examples of this genre mixed with a rather more elaborate set of rules to come up with something with plenty of 'just one more go' gameplay potential. Now, if only it looked a little less brown...




STARSEIGE TRIBES

FORMAT: **PC** DEVELOPER: **DYNAMIX**






Like *Extreme Warfare*, *Starseige Tribes* is a next-generation firstperson multiplayer game where teamwork is the key. Players can nominate a commander, who is granted a satellite view of the entire battlefield. If the other team blow up your radar station, though, he'll lose the data. An *Outwars*-style jetpack and incredibly distant horizons complete the picture.

MICRO MACHINES 64

Although unlikely to push the N64's polygonal capabilitiy to its limits (Codemasters' highly successful multiplayer racing experience has traditionally relied on playability over visual content), this latest adaptation should prove as popular as the previous incarnations that have graced the majority of platforms since its NES debut. Codemasters is also working on an arcade version to be released by Namco.





SAVAGE ARENA

FORMAT: PC DEVELOPER: RAGE SOFTWARE







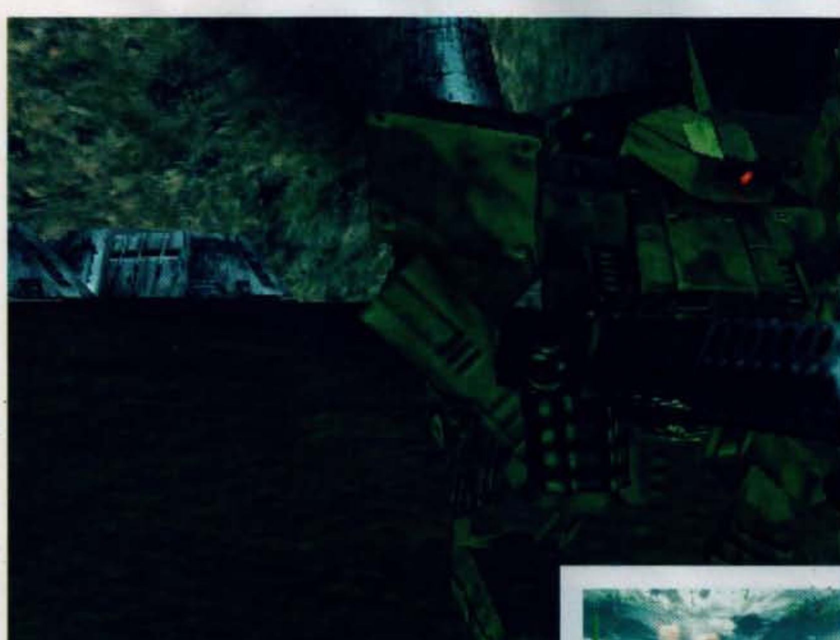




Rage claims this revamped port of PlayStation title *Deadball Zone* will answer the criticisms levelled at it. As before, *Savage Arena* pits teams of eight players together on a pitch where anything goes. Notionally, you're meant to get the ball into the other half. But with a huge range of offensive attacks and weapons, few players will be able to take a dive.

HEAVY GEAR 2

FORMAT: PC DEVELOPER: TARGET GAMES







This time around, *Heavy Gear* devotees will only be able to clomp their mechs around under hardware acceleration. Offering a variety of locations, from swamps to the arctic, plus the expected multiplayer mode, the game is hoped by publisher Activision to regain the ground lost to *Mech Warrior 2*.



EXTREME WARFARE

FORMAT: PC DEVELOPER: TRILOBYTE

Trilobyte has scaled back its massively multiplayer ambitions for *Extreme Warfare*. While the game still boasts up to 32 players fighting in one of ten air or ground craft (they can even pair up in a single vehicle) the more radical proposals, such as the multiplayer campaigns across persistent worlds, have been shelved. Instead, there's a bolstered singleplayer game and an advanced terrain engine.











SPYRO THE DRAGON

FORMAT: PLAYSTATION DEVELOPER: INSOMNIAC GAMES











Heading horns-first into the increasingly competitive, though hardly highly accomplished, PlayStation 3D platform market, *Spyro the Dragon* already has technically impressive, vividly coloured polygonal levels on its side. From current prescreen builds, however, its apparent insistence on going down well-trodden gameplay paths is unlikely to trouble *Mario 64* or *Banjo-Kazooie*.

KARTIA

Does the PlayStation need yet another RPG? Well, *Kartia* has sold over 100,000 copies in its first month in Japan, which says something. Owing much to *Vandal Hearts* and *Final Fantasy Tactics*, *Kartia* introduces fully interactive terrain (you can burn down trees and freeze rivers) and items that can be traded via memory cards. Art is from *Final Fantasy* designer Amano Yoshitaka.





CRASH BANDICOOT 3

FORMAT: **PLAYSTATION** DEVELOPER: **NAUGHTY DOG**

Will Naughty Dog realise its promise of improved gameplay as well as the expected graphical overhaul and bigger levels required by sequels? The first two uncomfortably similar instalments may have sold over five million units worldwide yet **Edge** can't help feeling a little apprehensive at the prospect of a second lazy, uninventive follow-up with *Crash 3*.











EXTREME-G 2

FORMAT: **N64** DEVELOPER: **PROBE**





Having listened to the criticisms of its original futuristic racer, Probe is confident *Extreme-G*'s sequel will emerge a far better product than its speed-obsessed predecessor. Graphics, visuals, weapons, and speed have all been tweaked but **Edge** couldn't help noticing that the game's vehicles are still bouncing off the walls with little velocity loss. Hopefully the gameplay hasn't been overlooked in the apparently ambitious cosmetic overhaul.





TOCA 2

After delivering one of last year's definitive car-related PC and PlayStation experiences, Codemasters returns with a much-improved sequel that looks set to stun the digital racing world



In addition to the usual championship and time trial modes, a sprint race option is available if you want to compete without having to think about pit stops











Drivers' heads being thrown about during collisions and subsequent arm-waving is now noticeable thanks to transparent windscreens

In a perfect world, all game sequels would show as much potential as *TOCA 2* does on paper. Predictably, the game mirrors the 1998 British Touring Car Championship season and therefore adheres to the new rule that only front-wheel drive cars qualify. More significant, though, is the introduction of pit stops, adding a strategic element to the already frantic proceedings. Rather than just a hastily and lazily developed title featuring new rules, a few more tracks and handful of new graphical routines, *TOCA 2* exhibits evidence of a thoroughly reworked product packed with improvements.

The most obvious enhancement is visual. Last year's crude PlayStation graphics now run in the machine's hi-res mode (the PC version will go up to 1,000x1,000 for anyone with a machine capable enough). There's more, of course; realtime light sourcing rears its pretty head and the cars feature a higher number of polygons for a better level of detail. Several other effects, such as smoke from blown engines, or tyres rubbing on displaced bodywork, are to be added. Also, the cars' windows are transparent, so you can see other drivers' heads being thrown about after a collision and the inevitable emphatic hand gestures that follow.

Each of the 15 other drivers has his own personality which affects how he will react to players on-track, as well as forming part of his pit strategy. Other AI additions include a third 'passive' racing line adopted by back markers when being lapped by the leading pack rather than following the racing line, despite being out of contention for a podium finish.

That isn't to say crashes no longer occur. Codemasters has placed a lot of emphasis on increasing the realism in this area, too. Therefore

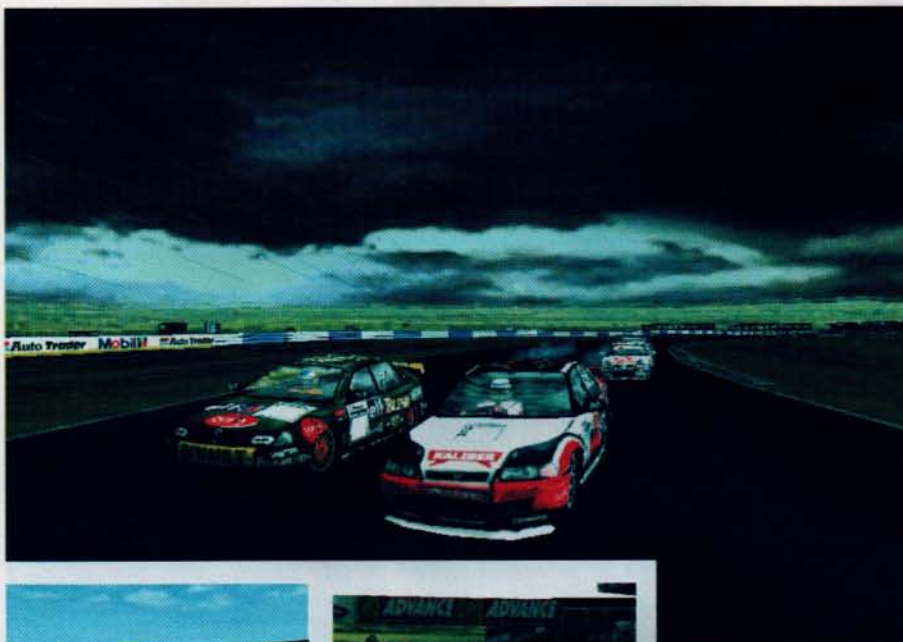
Format: **PC/PlayStation**

Publisher: **Codemasters**

Developer: **In-house**

Release: **November**

Origin: **UK**







The strategy-altering ability of dynamic weather is certainly a worthy addition to racing games, and it's one of the many improvements featured in *TOCA 2*





The overall increase in track and car detail is impressive – particularly when compared to last year's effort – resulting in better authenticity

loose bonnets are now ripped off at a certain speed, dangling bumpers scrape along the tarmac, and windscreens shatter. Furthermore, flying bodywork from competing vehicles can also damage any vehicle that happens to cross its velocity-led path.

Essentially, every aspect of *TOCA 2* revolves around the idea of authenticity. The physics extend to raindrops rolling up or down the windscreen, depending on the car's speed. Dynamic weather is, of course, *de rigueur* in a game of this standard. As is independent suspension and sound for each of the cars' four wheels, resulting in highly convincing race vehicles. Climb inside the car and there are even more touches designed to enhance realism. Vehicles feature a working dashboard and you can look either side of the driver, as well as glance up to the rear view mirror now and again to keep an eye on any position-poaching action.

Such scrupulous attention to realism is further reflected in the game's bonus circuits – eight international, freshly tarmac-coated examples with drastic elevation changes, crossovers and alternate routes should ensure that you remain hooked. Furthermore, there's also a test track, which enables you to gain essential first-hand experience of any modifications to your vehicle before entering a race meeting via the setup option. Thankfully, while fictitious, all of the extra tracks feature real attributes and as such represent a far cry from last year's disappointingly cartoon-like Lavaland circuit.

Yet one of the game's most remarkably ambitious features has to be Codemasters' decision to include all of the Support Car Championship races that occur during Touring Car weekend meets. You can therefore expect to thrash around in F3, Jaguar XJ220, TVR12+, Ford Fiesta, AC Cobra and three-wheeled Scorpion races, all of which feature realistic modelled vehicles boasting correct handling and suspension data for each category.

Although naturally impressed with how much Codemasters is attempting to cram into *TOCA 2* before its November release, **Edge** found the steering too heavy at this stage and the PlayStation version marginally lacking in the speed department. Should Codemasters manage to successfully combine all elements, *TOCA 2* could prove even more popular than its respected predecessor.







Visually, the PS version (above) is impressively close to its PC cousin. Link-up capability is included and this time twoplayer races feature all 16 cars on the track

TOMB RAIDER III

Having realised that even a highly successful videogame franchise needs innovation in order to survive, Core is busy enhancing the next Lara Croft adventure in time for Christmas







Triangular polygons (as opposed to the squares employed in the first two games) have enabled smoother surfaces to be implemented, and the levels now boast a more varied and organic feel instead of the structured nature of version *II*







Lara has increased her repertoire of moves and can now crawl into low gaps, dash through closing doors or swing across the ceiling

Format: **PlayStation/PC**

Publisher: **Eidos**

Developer: **Core Design**

Release: **November**

Origin: **UK**

Sceptics will frown at Ms Croft's rapid return to the polygonal world, having made her second appearance only last Christmas. The prospect of a yearly addition to the *Tomb Raider* series, *à la FIFA*, could prove disastrous for Lara's fortune should the public lose interest in the angular adventurer and her repetitive quests.

So Core has been working hard to retain your interest. *Tomb Raider III* is now less linear, with three levels – London, the Nevada Desert (Area 51) and a South Pacific Island – that can be accessed in any order after you've completed the initial India-set environment. Each of the settings is split into three levels and all must be completed before access to the last stage, Antarctica, is granted. The levels themselves are bigger and offer two possible routes of varying difficulty as a way of introducing an element of freedom into the proceedings.

Having gone back to the original title for inspiration, the new team has reduced the number of human enemies, as well as emphasised the exploration aspect in favour of the more arcade-based approach found in *Tomb Raider II*. The enemy AI has improved: tigers have developed a pack mentality and hunt accordingly, for example; while, as it's only able to detect movement, the T-Rex won't attack should you stand still. It didn't work for Jeff Goldblum in 'Jurassic Park', but if you throw a flare the carnivorous monster should happily chase it like a dumb, oversized dog.

The puzzles, too, have changed from their usual reliance on key/door combinations to something that involves logical thought, although from what **Edge** has seen, these are unlikely to trouble the majority of the game-playing population suffering a sub-100 IQ.

Visual enhancements include smoother environments, a hi-res display for the PS version, and generous use of coloured lighting and particle effects.

How successfully the various improvements glue together in the final version shall be revealed in a couple of months' time.





Among other additions, *TRIII* is analogue and Dual Shock compatible

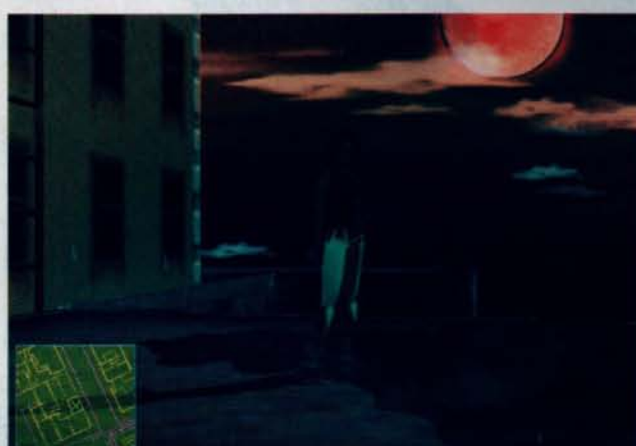
URBAN CHAOS

As the pace of 3D technology gradually opens new doors for the free-roaming PC adventure, ex-Bullfrog codewarrior Mucky Foot sets its sights high with the ultra-ambitious *Urban Chaos*





The graphics engine is already revealing a game with enormous potential, while the scale of the city even enables you to play the role of rooftop sniper



Featuring a female protagonist that fortunately doesn't bear too much of a resemblance to Ms Croft, *Urban Chaos* will be a PC title worth watching

Building a city that lives and breathes might have been an admirable accomplishment for the designers of the *Sim City* series, but for Mucky Foot it's looking like an entirely different proposition. Previously known as *City of the Fallen*, the company's debut project sees a well-designed post-Lara protagonist inhabiting a dark and expansive realtime metropolis, courtesy of a highly sophisticated 3D engine. This renders everything in RGB-lit 3D meshes, allowing you complete freedom to explore not only its streets and buildings but also the more dangerous – and therefore more appealing – network of rooftops, subways and sewers.

Plot details are being kept under wraps until nearer the game's release next year, but expect a dark, semi-apocalyptic scenario combining elements from the SNES sleeper hit *Shadowrun* with the more visceral pleasures of a classic scrolling beat 'em up such as *Double Dragon* or *Ninja Gaiden*. In a fashion similar to DMA's *Grand Theft Auto*, Mucky Foot claims that the player will be very much in control of the direction the game takes. So, if you've a penchant for more arcade-style play, you can opt to immerse yourself in complex street brawls with multiple adversaries, while the tactical strategists among us will choose to pursue the game's more cerebral challenges – using the subway or even a motorbike to navigate your way around the expansive environment.

Currently, the PC is enjoying prodigious development away from its established breeding grounds of strategy and simulation, and is now leaning towards more console-like action adventures. However, it's worth remembering that DMA Design spent three years creating 'living' cities to race around in, and *GTA*'s were were fixed in a 2D perspective. With this in mind, Mucky Foot's plans to integrate so many gameplay objectives in a true 3D world start to seem ominously ambitious – especially if it's to make its scheduled March 1999 deadline. Impending chaos indeed.





The finished game is even expected to have a firstperson camera mode – handy for taking out city gang members with a sniper rifle

Format: **PC**

Publisher: **Eidos**

Developer: **Mucky Foot**

Release: **March 1999**

Origin: **UK**

GODZILLA GENERATIONS

In a move intended to draw attention from Nintendo's recent *Pocket Monster Stadium* launch, Dreamcast's first VMS-compatible title enables players to send their carefully nurtured pets to battle









As well as having to fight equally-sized opponents, players can take time to munch on a nearby skyscraper or two, before continuing their rampage











The current state of *Godzilla Generations* isn't representative of Dreamcast's power; the developer is said to be aiming for an overall film-like quality

To coincide with the release of Hollywood's distorted vision of 'Godzilla' in Japanese cinemas, Sega has finally released information regarding its interpretation of the gigantic, city-destroying green biped to be released on the company's forthcoming 128bit hardware. Newly announced thirdparty General Entertainment has been charged with the adaptation which, in a move that will no doubt confuse US players unaware of Godzilla's existence in any form other than Roland Emmerich's contribution to Hollywood's ever-growing list of overpriced, CGI-dependent cinematic attempts, features characters from the countless films produced by Toho, the Japanese studio that owns the 'Godzilla' license.

The concept is remarkably simple: different monsters fight each other with a 3D Tokyo serving as the battlefield. The level of detail present within the painstakingly modelled Japanese capital is impressive, even extending to the vehicles frantically avoiding the creatures' no-claims-bonus-destroying feet. At this stage, Sega was not keen on detailing elements of gameplay or the structure of the game but already some visual effects – the fire effects and realistic textures, in particular – are impressive.

Predictably, players can take the monsters raised using Dreamcast's Visual Memory System (currently on sale in Japan along with the Godzilla *Pokemon*-style game) and get them to fight against each other on the 128bit machine. As in the N64's *Pocket Monster Stadium* (see Out There, p147), players can expect their creations to metamorphose from grey bitmaps into fully textured 3D models – which is bound to prove massively popular amidst a videogaming society whose obsession with nurturing digital pets remains undiminished.



The level of detail present in the current model of Japan's capital is impressive

Format: **Dreamcast**

Publisher: **Sega**

Developer: **General Ent.**

Release: **Late '98 (Japan)**

Origin: **Japan**

B-MOVIE

The little-lauded film genre of the same name has sparked a slew of contemporary imitators. From 'Mars Attacks' to this arcade-style shooter, the message is the same: there's something out there







The game progresses through several distinct locations, from rural America and Washington DC, to the final battle on the aliens' planet

Shoot 'em ups have long been the B-movies of videogaming, all dazzling effects and predictable plots, delivering short, sharp shocks but no long-term depth. London-based developer King of the Jungle (creator of *Agent Armstrong*) has chosen to tap the rich pool of inspiration that those '50s filmic gems offer, for its second game, *B-Movie*.

The game's US name, *Invaders from Beyond*, gives perhaps a better clue as to what this title's about. You must defend the earth from the attentions of marauding alien craft which are out to beam up hapless American civilians, in true B-movie style. These aliens are able to attack in large numbers thanks to the swish graphics engine, the work of veteran coder and King of the Jungle co-director, **Raffaele Cecco** (*Exolon*, *Cybernoid*, *Street Racer*).

Development of *B-Movie* has been all but completed in just ten months, a remarkable achievement for a team consisting of only five members. According to Cecco, "We learned a lot about the PlayStation during the development of *Agent Armstrong*. So we had this library of ideas, and a really good engine up and running in two months." Zapping the invaders occurs at a fluid 60fps. "It's as fast as it can be, really," continues Cecco, "because the ships move so fast, we couldn't really have it running at 30fps like a lot of other games, it simply gets too jerky."

To avoid the game becoming overly repetitive, King of the Jungle has included several 'added-value' aspects. But, in keeping with other modern shoot 'em ups, the game sports interesting extras and a thirdperson, 3D viewpoint (reminiscent of *Star Fox*). You have to complete various sub-missions on each of the 20 levels, while human scientists can be beamed up and set to work. "You can research for things like cooling units [to increase fire rate], and buy new weapons with things you've picked up," explains Cecco's business partner, **Stephane Koenig**. Company musician and artist **Jo Myers** interjects: "If you rescue scientists on certain levels, you can bring them back to the hangar and apply them to certain weapons and upgrade them even further. So we reckon there are around 60 weapon types."

Koenig again: "We wanted to go for the fun side... It's a futuristic view of things from someone in the '50s." *B-Movie* is all about variety. "You end up going to the mothership above the earth, and then to a moonbase. And at the end of the game, you're actually on the alien home planet, kicking their arse." Those keen to repel the Martian attack should watch out for sightings in late October.







Developer King of the Jungle has created a super-slick 3D engine for *B-Movie*. Explosive effects are up there with the PlayStation's finest





There are over 15 spaceships to choose from, with dozens of weapon configurations

Format: **PlayStation**

Publisher: **GT Interactive**

Developer: **King of the Jungle**

Release: **October**

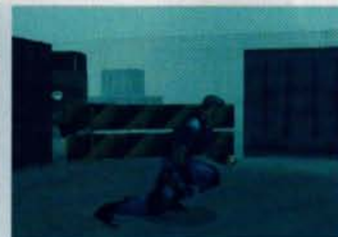
Origin: **UK**

WIN BACK

While N64 owners are unlikely to get *Metal Gear Solid* running on the cartridge-based console, war simulation specialist Koei is intent on providing them with something very similar



***Win Back* unashamedly borrows elements from *GoldenEye* and Konami's long-awaited *Metal Gear Solid*. Hopefully, it will turn out just as playable**





Koei has placed a lot of emphasis on getting the main character's motions right. More than 450 different sequences are used to get him around levels





Like all good spy-based adventures, stealth is a major aspect of the proceedings. Any other approach is likely to result in swift death

Format: **Nintendo 64**

Publisher: **Koei**

Developer: **In-house**

Release: **Late '98 (Japan)**

Origin: **Japan**

By now, any discerning PlayStation owner will have realised that there's very little in the way of triple-A products coming their way. So far, with *Gran Turismo*, *Resident Evil 2*, *Tekken 3* and *Colin McRae Rally*, 1998 has been a remarkable year for the Sony's 32bit grey plastic box, but the thinking is that the best has already come. There are exceptions to this rule, and *Metal Gear Solid* should round off the year in style (PAL owners can expect a 1998 release). And like the sudden show of titles boasting the letters 'GT' in their titles after *Gran Turismo's* release, it was only a matter of time before a game borrowing elements from Konami's adventure would rear its polygonal head.

Yet, while *Win Back* may apparently owe a lot to Konami's effort, it does nevertheless represent a dramatic departure for a developer that has in the past concentrated on the highly profitable (in Japan, at least) war simulation market. Admittedly, recently Koei has widened its repertoire by creating the radically different *Sangoku Musou* for the PlayStation, as well as the forthcoming (albeit more generic) *Destraga*. Still, *Win Back* is a new departure, even if only in terms of it being an N64 project.

The game features an in-house specifically developed 3D engine, labelled Active Motion System (AMS), which manages character motions in realtime, creating convincing film-like in-game sequences. According to Koei, over 450 motion patterns are employed by the main character.

As Jean-Luc Cougar, a member of the SCAT (Strategic Covert Action Team), you must dispose of terrorists belonging to the secret Crying Sheep organisation. The latter are more dangerous than the 'sheep' tag suggests, so SCAT is sent to target their underground base.

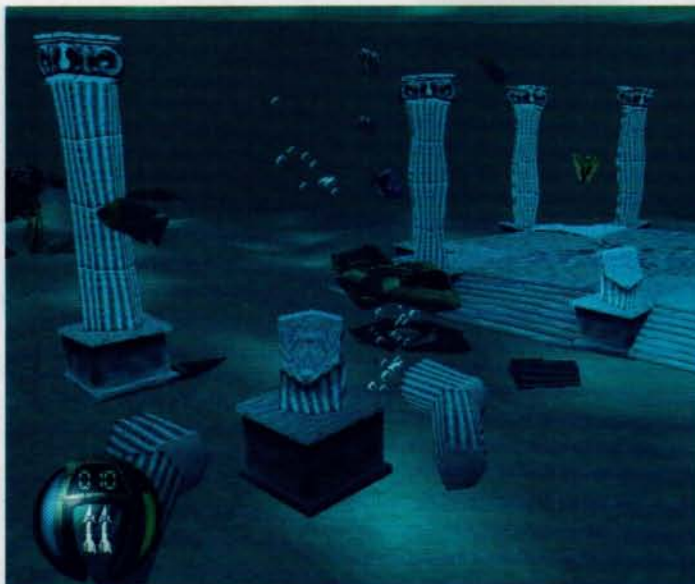
Set in a 3D world, characters are naturally allowed to move freely within their environments and can perform a variety of actions. A stealth-like approach would be a good start, however, and likely to prove more life-preserving than running around emptying ammunition clips at Crying Sheep operatives. Jean-Luc's actions throughout the game affect the overall plot, as does the difficulty level, and although still early, the graphical quality is currently encouraging. Hopefully, the gameplay will match the finished visuals.



Although several weapons can be found throughout the game, the enemy has access to major artillery such as flame throwers and rocket launchers

V2000

Strategic elements mated to a simple, engrossing premise, and an option to dodge the control system from Hell – after *Frontier*, could this be a return to form for David Braben?









By collecting a 'weight' power-up, players can venture into aquatic locations (main). The undercurrents have a tangible effect on the craft's handling. A settlement defends itself against an attack by dangerous 'Dragon' aliens (above right). Do not underestimate the importance of automated weaponry…

David Braben's original *Virus* was hailed as a flawed masterpiece: a simple premise (stop the red virus from spreading throughout the land), gunfire-oriented gameplay, breathtaking visuals… and a control system that was as off-putting to the novice as it was rewarding to the experienced and dextrous player. *V2000* could have been typically '90s, a cynical by-the-numbers rehash of the old game, candy coated with smart polygonal visuals. Thankfully, there are enough new ideas on display for it to be considered a true sequel in the least pejorative sense of the word.

By way of a nod towards the casual gamer – those most likely to find the 'classic' control system most intolerable – *V2000* introduces a Hover Mode flight system. For the player making their debut, this is the easiest way to sample the first few of the 30 levels on offer. However, the more refined and powerful Flight Mode will reward perseverance (or perverseness – you decide) and is the best way to tackle the foes found later on.

Those 30 levels are spread over six worlds, each possessing an individual graphic flavour – including Green World, Ice World and Alien World – though the levels on each one do not have to be approached in a linear fashion. The premise is more innovative, too; in place of the basic search-and-destroy motif of its predecessor, missions are given for each stage. Successful completion of each will assist in the process of eradicating the virus.

In order to improve the capabilities of their craft, players must exploit the Factory units that manufacture power-ups. You can also capture natives and press them into work, either as drones to boost productivity, or as scientists to develop better technology. Careful management of these human resources is vital to success.

In spite of these strategic elements, the emphasis is still on action. Reflecting gamers' appetite for hardware, the sequel offers 22 different weapons with which to tackle the aliens that spread the pestilence, including CPU-controlled units that can be left to defend installations while you explore elsewhere.

V2000's unusual approach to blending action and realtime strategy makes it one of 1998's most genuinely interesting titles – a welcome respite from fighting, driving and endless *C&C* or *Quake* derivatives.

Format: **PlayStation/PC**
Publisher: **Grolier Interactive**
Developer: **Frontier**
Release: **October**
Origin: **UK**

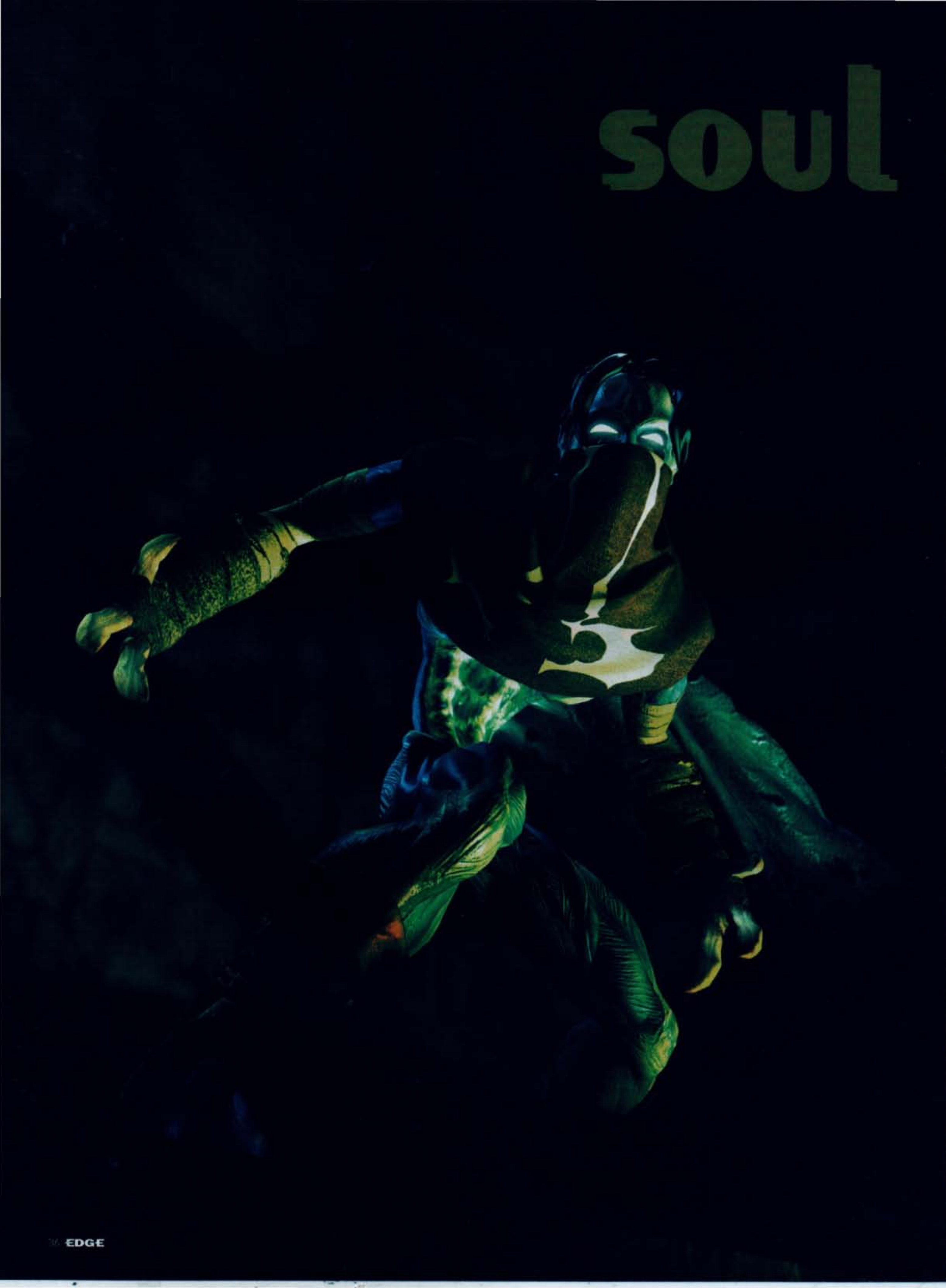






The spreading virus is visually distinctive, especially when destroying the lush pastures of Green Land

soul



REAVER

Videogame vampires are serious characters; Peter Cushing would have a hard time recognising the vampires that inhabit Crystal Dynamics' dark new title: *Soul Reaver*







The game's lighting effects are another aspect that hasn't been left untouched by Crystal Dynamics' team. But unlike most visual extravaganzas, the gameplay may be superlative

While their silver-screen cousins have suffered strutting their stuff amid gasping blondes, ketchup blood and joke-shop teeth, the digital undead have been enriched with ancient bloodlines and credible personalities. And none more so than Raziel, the chief teeth in Crystal Dynamics' *Soul Reaver*.

With the game's production now at full tilt, **Edge**, initially attracted by the game's stunning 3D engine, went intercontinental to Crystal's Palo Alto base (a curiously modern-church-like affair). After a few short minutes talking to game director **Amy Henning** and marketing manager **Jim Curry**, it soon became clear that *Soul Reaver* has rather more to it than good looks.

Subtitled *Legacy of Kain 2*, the game follows an earlier Crystal product; *Legacy of Kain: Blood Omen*. All that's been inherited from the older title is the plot, with the story shifting 1,000 years on from the Lord Kain's seizure of the land of Nasgoth. To help enslave (or enchillada) the human cattle, Kain created six lieutenants, one being *Soul Reaver*'s anti-hero, Raziel. Foolishly daring to evolve beyond his master, Raziel sprouted a set of wings (as you do), thus unleashing his master's wrath. In his



Crystal Dynamics is introducing puzzle elements in a fashion similar to *Super Metroid*, *Zelda* and *Tomb Raider*, whereby players are faced with a problem immediately upon entering a room

fury, Kain cast Raziel into a pool of water, where he didn't die but was burnt away to a shadow of his former self. At this point, an ancient god stepped in, striking a deal with Raziel to save him from his pain. "If you return to the surface of Nasgoth and collect souls for him, he'll give you the opportunity to seek your vengeance against Kain. And that's the premise for *Soul Reaver*," explains Curry.

As game plots go, it's not a bad start, and worth the retelling for the depth it gives Raziel as a character. Ingame he's suitably wasted in appearance, and hand-animated through dozens of movements that portray several abilities. From the outset, players can perform jumping, swiping and gliding actions, and manipulate objects throughout the game world. Offing Kain's cohorts is made all the more gory once Raziel encounters and utilises the spears carelessly scattered around levels, while the satisfaction of hurling another vampire into water cannot be underestimated.

During combat you can lock on to opponents, *Tomb Raider*-style, by holding down a shoulder button. As Henning says, "It just takes away all that uncertainty about 'Am I close enough? Am I facing him?' as long as you're holding that button." Once an enemy is dispatched, Raziel is able to reap their soul (which floats up out of their body), pulling down his veil and drawing it into his monstrous body.

As you progress through the game, the central character's abilities increase – a burgeoning trend in game design. Henning quotes past Nintendo glories

Once an enemy is dispatched, Raziel is able to reap their soul, pulling down his veil and drawing it into his monstrous body



In an interesting approach, the whole game functions as one gigantic level, with continuous loading of the adjacent rooms so as to prevent any gameplay interruptions







Raziel, *Soul Reaver*'s main character, is far removed from the classic vampire look perpetuated by Hollywood's numerous Dracula films

Super Metroid and *Zelda* as an influence in this, relating that "In *Zelda* you start off and there's a lot of things you can't do. In this it's just the same." Raziel learns – *à la* Alucard in *Castlevania: Symphony of the Night* – various magic spells, how to scale sheer walls and phase through grates, and picks up one of *Mario 64*'s tricks which enables him to run rings around enemies, constricting them with loops of energy.

However, Crystal Dynamics has been hiding *Soul Reaver*'s neatest trick up its collective sleeve. Once Raziel's hit points have fallen to a low ebb he can't die in the traditional videogame sense because of vampiric immortality. Instead he slips into what Henning has dubbed the spectral plane, "an expressionistic, twilight version of the real world. And it's also your home base." Here you must search for souls (which are regularly placed),



The level of detail and strong character development throughout the game is highly impressive and is the result of the efficient 3D engine that caught **Edge**'s eye at this year's E3 exhibition

The shift to the spectral plane occurs in realtime, with the game world twisting and discolouring around you. It's a fantastic effect









This sequence shows Raziel slipping into the spectral plane, a visually stunning parallel dimension where he can feed on souls to replace his waning power

rebuilding Raziel's strength. Henning explains: "I always felt that death in games is always sort of artificial anyway. *Mario 64* gives you three chances: lose them all and you get kicked out of the castle. What's the first thing you do? Run straight back into the castle. Why put the player through that?" The shift to the spectral plane occurs in realtime, with the game world twisting and discolouring around you. It's a fantastic effect; stairways resemble scattered pick-up sticks and walls bend in and out.

Welcome to the spectral plane

Another of the abilities Raziel gains as play progresses is to be able to shift between *Soul Reaver*'s real world and the spectral plane at any time. Once in the spectral plane time stops, adding an extra dimension to the gameplay. "If you're trying to get to a cave opening in a cliff, you can push a block down, pop into spectral and it will be suspended in mid-air. You can then jump on the block and gain access to a new area," Curry elaborates. Elsewhere, Raziel must traverse a series of columns but only through going spectral and twisting the pillars can the jumps be made.

All of the above requires a lithe 3D engine. *Soul Reaver*'s technical prowess is rooted in its colourful sister title *Gex 3D*, although one significant advance has made for a far more capable system than that which drew the Gecko. "The way the engine used to work is that it would load up one complete level, but this technology enables data to be loaded for just the room ahead of you," says Curry. Graphics are streamed directly from the CD just prior to the engine needing them.

Henning continues, "Any one piece of the level, be it a hallway or canyon, is glued to other pieces, so the world is actually one giant level. At any one time you'll have the room that you're in and anything that's adjacent to it in memory. You're never aware of loading events." So it's possible to have the player revisiting areas as they would in a cartridge game, where Raziel's added abilities can be used to explore previously inaccessible areas. "What good is revisiting areas if you have to load up the whole level?" damands Henning.

Her approach to level design has been that "each area should have a puzzle of its own. You should be presented immediately with a problem. In *Tomb Raider*, you'd walk in and see the problem and then have to work out the solution. *Zelda* and *Metroid* did that well, and that's something we've tried to emulate." A modern hub-and-spoke arrangement of levels is used, to ensure the player has the option of tackling a selection of stages at any given moment.

The battle to defeat Kain

A series of plot events ensures a strong sense of 'exploration with rewards', an example of which Henning outlines: "A third of the way through the game you run into your nemesis and your father Kain. He has an ancient saber, called the Soul Reaver, that devours the souls of its enemies. In the battle the sword gets destroyed in its material form, but exists in the spectral plane." Raziel uses this sword, and finds mystic forges where it can be imbued with fresh powers.

Soul Reaver has gameplay elements that could make it Crystal Dynamics' greatest achievement yet. Henning again. "It's emulated all the things I like as a player – character growth, knowing all the things you're able to do, the non-linearity of the story." With five months of development time left to crystalise the dream, *Soul Reaver*'s potential magnificence seems assured.







Raziel (above) cannot die, but instead enters a spectral plane which can also be used to solve puzzles or access certain areas



Interstate

'Mad Max' collides with 'Miami Vice' in Activision's road trip back to the 1980s. "The decade of skin-tight denim and the Farrah Fawcett flick?" enquired Edge, incredulously...







A 3D-card-only title, *Interstate '82* knocks spots off its predecessor, visually. The 20 different playing environments – which include some indoor-based sections – are enormous, and feature multiple layers (above) and reflective surfaces (right)









The game engine's new particle system allows for realistic explosions (top). As in the previous game, *I'82*'s cars are 'inspired' by real-life vehicles (above)

'82

Driving. And killing. According to sales charts, that's what videogamers most like to spend their time doing. Hence the proliferation of titles such as *Gran Turismo*, *Colin McRae*, *GoldenEye* and *Unreal*.

Imagine, then, the perfect marriage of these two disciplines. That's what Activision seems to be attempting with *Interstate '82*, the sequel to last year's audacious 1976-themed effort.

Gone is the clunky old *Mechwarrior*-derived 3D engine. In its place is a chunk of 3D-accelerator-specific code that promises more complex environments and a bundle of special effects to accompany the balls-on-the-table action that forms the template of the game.

But hold on. While the '70s are now viewed with some affection, aren't the '80s just a little bit too fresh – and, many would argue, just plain naff – to be revived? Bleached jeans? Highlights? The Yuppie ethos? Enter **Zach Norman**, *Interstate '82*'s writer and producer: "Well, to be honest, we had a similar reaction with *Interstate '76*; people saying, 'Why the hell are you bringing back the '70s?' And it was strange, because there really are some cool cars from the '70s – Chargers and Challengers and Camaros and whatnot – and I pointed them out to people, and they started to realise, and appreciate, what we were doing."

Muscle cars from the '70s: fine, but what, specifically, is Norman grabbing from the '80s?

"Well, we're still representing the cars I just mentioned in the sequel. Just because it's later doesn't mean that they're off the scene – in fact, those are kind of the bread and butter that a vigilante would use. But I think that we have a wealth of '80s vehicles to take our inspiration from. For example, Italian exotics from that period were incredibly cool, and there are German cars that were amazingly pervasive. Bruce Springsteen was singing about pink Cadillacs at that time, and ZZ Top had hot rods as their icon. We're putting together a careful blend of the old and what was new in the '80s."

A significant amount of *Interstate '76*'s appeal lay in the fact that it held together as a package. Granted, it was building an alternative 1970s world – an almost parallel universe – but its many components conspired to give it an authentic feel. The same is true of the sequel, and especially its soundtrack: "It will have the same kind of artistic sensibilities as the first soundtrack, in that it will be very much crafted with the sound of the times," says Norman. "We're using the instruments of the time – the *right* keyboard sounds, the *right* drum machine sounds, everything faithful to the era. And we're actually forming deals with real bands from the '80s, which at this point will have to remain secret, but I can't *wait* to tell you."

Hmm. Those doubts about the '80s still refuse to go away. "Well, we're being very selective," says Norman. "We're talking more Depeche Mode than Dexy's Midnight Runners."

Unlike car-based actioners such as *Grand Theft Auto*, the *Interstate* brand is as much about weapons as it is the cars they're mounted on, and this element is something Norman is particularly wired about. "We have a whole new class of weapons called carpoons," he explains. "We have the MAGMA carpoon – which stands for Magnetic Guidance Missile Attractor – and we

Getting into videogames: the Zach Norman method

"I was in a software store in Los Angeles and I noticed a box for a game called *Mechwarrior 2*. And I had no idea what it was, but I saw a giant robot on the cover and I wanted to play it. So I went over and picked up the box and it was empty. So I said to the guy behind the counter, *"Give me this,"* and he responded, "Oh, those guys at Activision are taking their time – that's just a promotional box. They keep telling me it should be out any time soon." So I said, "Put my name on a list and give me a call when it comes in." And I went away, and a few weeks passed. I was working as a screenwriter at the time, and I actually got a job at Activision, writing. So I ended up writing on *Mechwarrior 2*, and to my delight I was eventually asked if I'd like to be the game designer on it. When we finished, I got a phone call from the software store saying, "Your *Mechwarrior 2* is in, do you want to come in and pick it up?" And I'm like, 'Well, actually I *made* it.'"







Forty vehicles are planned, including Italian exotics (above), plus a selection of more unusual examples, such as school buses, motorbikes, golf carts, drilling machines and a helicopter. An 'Italian Job'-style Mini may also be included

have the HAVIK carpoon, which is the High Voltage Ignition Killer. Carpoons are like harpoons – they're fired and they stick into the cars' internal armour to deliver an electronic package. In the case of the MAGMA carpoon, a successful hit will cause any missiles in the air to make that car their new target. In team play it adds combo moves – you hit them with the magma and then launch the missile and it's a more guaranteed hit. So weapon combos become more important."

But it also works on a far more outrageous level: "We have a new weapon called the LARS (Light Amplifying and Reflecting Satellite), which is my nod to '80s 'Star Wars' technology. It's a laser beam of reflected sunlight which will cook a car in much the same way a kid would use a magnifying glass to cook an ant. Its mechanic dictates that it doesn't really hit, it's not accurate on cars that are moving quickly, so once again, you hit them with a HAVIK and their car stalls; while they're stalled you hit them with the LARS. It encourages players to make flexible cars.

Now we not only have weapons but we have weapon defences, including chafe and flares, and the new notion of putting different kinds of shielding on cars

"Now we not only have weapons but we have weapon defences, including chafe and flares, and the new notion of putting different kinds of shielding on your car. You can use asbestos shielding to make your car fireproof so flamethrowers become redundant. This makes it more difficult for a player to come in with five flamethrowers and use them all simultaneously; they have to be more flexible and think about how they craft their car. It becomes, I think, a little bit like a player who has a well-crafted *Magic: The Gathering* deck, they can just sit down and play or they can *really* think about their deck and make it more effective. It's the easy-to-play-difficult-to-master phenomenon."

Listening to Norman evangelise *I'82*, one particular fact becomes especially clear: the team carefully listened to *I'76* players.

"*I'76* feedback told us that players wanted to get out of their cars," he reveals. "And this has some profound gameplay implications. You can open and close gates, or operate machinery; anything you can imagine in a firstperson shooter sense you can actually do in our game, by hitting switches, so there's a little bit of puzzle-solving. There might be an area that only a motorcycle can get through, so you use the bike, ride through, get to where you have to start the power that will allow you to open the gate, then you can go back and bring your car through."

The version of *I'82* **Edge** saw featured near-complete 3D worlds and operational, convincing physics and special effects, but was, to a degree, a shell waiting to be filled. One element remaining to be integrated, for example, is the storyline, which, partly via the use of '80s-flavoured cut-scenes, covers the further exploits of *I'76*'s Taurus and Groove as they become embroiled in a government conspiracy.

As Norman spins his onscreen vehicle, replete with a stack of roof-mounted weaponry, into a car park in downtown Vegas, **Edge** remembers another element of *I'76* that was especially memorable: the potential school bus mishap. Is this sort of outrageous content being carried over to the sequel? "You can bet on it," replies Norman, without missing a beat.





Some of the exterior sections may be similar to those of the first game, but they're packed with more detail. In interior sections, Zach Norman wants to create "*Quake*-style" environments, which should especially suit multiplayer sessions







In physics terms, the team is modelling each wheel independently, and taking torque and friction into account. Also, in oneplayer games, enemy AI has been significantly ramped up







The finished game will feature 30 missions, including some based at night. Super-realistic lighting effects – including neon in Vegas – build atmosphere

THE FRENCH CONNECTiON

Tempted by French softco UbiSoft's upcoming output, Edge shirks the mundane option of the Channel Tunnel and jets west to visit UbiSoft's Canadian outpost. Via UbiSoft's pals 3DO in San Francisco, naturally









As well as fast racing, *Speed Busters* includes some amazing – and dangerous – set-pieces including a dinosaur (top right) and Jaws (right)

UbiSoft. A name that doesn't set the heart racing, yet is strangely appropriate. Its own output is patchy – its standout titles include *Pod* (though it was awarded five out of ten in **E**44) and 1995's platform hit *Rayman* – but UbiSoft distributes the games of more than 50 publishers. In France and the rest of Europe, its software truly is ubiquitous.

Happily, the company is investing in pan-global development, with offices in Shanghai, Eastern Europe, Paris and Montreal. **Edge** visited the latter, stopping briefly for tea and crumpets with UbiSoft's Californian friends, 3DO.

UbiSoft's Montreal offices are among the most pleasing in the games industry. Hidden within a nondescript building in a less-than-lovely area of the city, it eschews the usual cubicles and clutter for a commodious arrangement of stripped floorboards and huge windows. The average age is 24 and, perhaps because of the focus on art, there seem as many women as men, further subverting the staple games development image of bearded Buttheads.

Getting up to speed

At Montreal, staff are physically divided into studios based around a common focus, such as sound or animation. Team members are recruited from across these groups, but benefit from continuing to work next to their peers. **Edge** found three games in progress: *Speed Busters*, *Tonic Trouble* and *Hype: The Time Quest*. (UbiSoft's other hope, *Rayman 2*, is being created in Paris).

The most convincing right now is *Speed Busters*. Based on a souped-up version of UbiSoft's admirable *F1 Racing Simulation* engine, *Speed Busters* is a more light-hearted hurtle through the US landscape.

Playing *Speed Busters* on a P233 with a Voodoo 2 card, **Edge** was pleased to find console-smooth framerates, with no jittering (a bugbear of current PC games). The wide tracks whip you through six landscapes, ranging from Hollywood and Las Vegas to Louisiana. *Speed Busters* rewards players with cash bonuses for busting radar traps, and this, together with prize money, forms the crux of the game, enabling you to upgrade your car. Beyond the usual short cuts, a further bonus for repeat play comes in the form of a secret track which is unlocked when you win all six tracks consecutively.

As well as the nippy sensation of driving (only the comparatively barren *Motorhead* comes close), *Speed Busters* puts great emphasis on environments. For instance, when racing around Aspen, Colorado, you'll need to avoid avalanches, which can trip up computer drivers as well as human racers. Instead of lazily cycling through these interactive animations, the game presents them as an irregular surprise hazard – just wait until you see the UFO and giant ape...

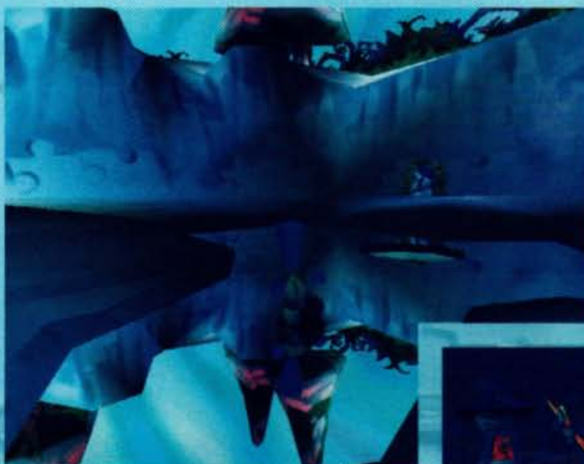
Donning platform shoes

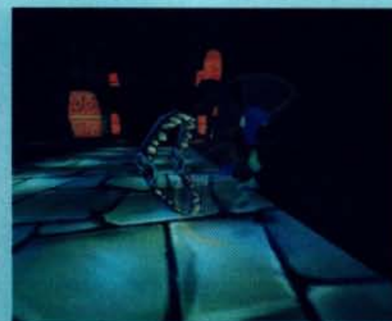
On a completely different tack, UbiSoft is also working on two *Mario*-inspired platform games (see page 76). *Rayman 2* and *Tonic Trouble* were both conceived by Michel Ancel, the





UbiSoft hopes *Rayman 2* will provide more fast action than other 3D platformers









***Tonic Trouble*'s hero Ed flies like a bird (right) and slides down hills like a Mario (far right)**

long-term UbiSoft wunderkind who created 1995's best-selling 2D platformer *Rayman*. The bulk of *Tonic Trouble*'s development is based in Montreal, whereas Ancel, and *Rayman 2*, are based in Paris.

Both games are visually accomplished... all characters have a wide range of expressions and are animated with a unique 'limbless' graphical style that borders on caricature

Both games are visually accomplished. Not only are they more technically accomplished than comparable titles (the texture quality of *Tonic Trouble* rivals Rare's formidable *Banjo-Kazooie*), but all characters have a wide range of expressions and movements, and are animated with a unique 'limbless' graphical style that borders on caricature.

Lassos and pogo sticks

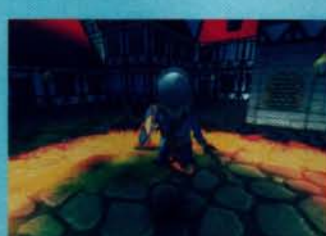
Further innovations (aside from the plot, to which, due to the French influence, the developers assign slavish importance) lie in the huge number of abilities which Rayman and *Tonic Trouble*'s Ed are able to perform. Rayman is superhuman, with a wide range of jumps and rolls, climbing skills, and a knack of riding beasts through the maps at incredible speeds. Ed is similarly skillful, possessed of chameleon powers and a buffed-up 'Super Ed' mode. Both characters wield projectile weapons, which can also be used as a lasso and grapnel (Rayman), or a pogo stick and telescope (Ed).

While both games look incredible, and exploit an often-neglected vein of visual humour, there remains work to be done on the engine. Unfortunately, **Edge** hasn't had the opportunity to play *Rayman 2* since E3, but explored the latest version of *Tonic Trouble* in Montreal. Two problems were apparent – a schizophrenic and unhelpful camera and a jittery control system that makes *Mario 64* look like a sleepwalking sim. And, like the original *Rayman*, *Tonic Trouble* is frustratingly difficult. Hopefully these problems will be fixed in the months ahead.

Like child's play

Tonic Trouble's engine doubles up to bring Playmobil into the PC adventure *Hype: The Time Quest*. Games featuring plastic knights that target gamers of ages 'eight plus' (in a big bright font) are admitted into **Edge** with great trepidation. But *Hype* is one of the most surprising titles to emerge this year. For a start, it's another graphically accomplished game. UbiSoft's battalion of artists has excelled under the constraints of Playmobil, imbuing the characters with life yet retaining their rigid artificial moulds. Day, night, fog and rain effects are complemented by realtime shadows that deform across the environment. The only real snag is apparent when the protagonists resort to combat – like Looking Glass' *Thief* and Gremlin's *Blade*, UbiSoft is struggling to make swordfighting anything more involved than blindly stabbing with the sword.

Playmobil typifies the latest batch of UbiSoft games – there's nothing incredibly original but what's being created comes stuffed with ideas and a commitment to detail. *Speed Busters* seems a sure success, while *Hype* could tap a previously neglected market as a superb example of what happens when a license goes right (the bones of the game will also feature in a pure children's game and another made for girls). The two 3D platform games have everything to play for, although they're working in an extremely different genre. If their gameplay can be tweaked to match the visuals, UbiSoft could emerge as one of 1998's unlikely success stories.









The Playmobil knight that is Hype tackles a puzzle reminiscent of *Prince of Persia* (main). With dragon flight (left) and sword fights (right) this isn't just for kids

3DO: Californian Connection

Witnessing a software strategy that works, UbiSoft is helping 3DO to make a name for itself in Europe

Trip Hawkins may have given up on hardware but he's not abandoned platforms. The strategy at software-only 3DO Studios is to create games that have some element of re-usability, be it a standout 3D engine or a license with legs. And its latest PC games, *Requiem*, *Uprising 2* and *Heroes of Might and Magic III*, all fit the strategy.

With the staleness of firstperson shooters even prompting id Software to tamper with the *Quake* formula, *Requiem* seems like manna from heaven. You play an unangelic angel, fighting fallen dark angels that are hell-bent on destroying the human race.

While *Requiem* stops short of an adventure's non-linear gameplay, in most other respects it 'borrows' from the genre heavily. There's conversation with non-player characters, plot twists and story-advancing encounters. Like *Unreal*, *Requiem* features characters who shouldn't be killed – and, uniquely, others who fight alongside you.

As a violent angel, you've no qualms about bloodshed but you're disdainful of secular staples like shotguns. Why bother when you can turn your enemies to salt, plague them with locusts or boil their blood? Other powers include flight and, like Shiny's *Messiah*, possession. Several Catholics on the team are apparently the keenest to ensure the angel is suitably foul-mouthed and sadistic...









3D shooters are judged on their graphics engines. *Requiem*'s is good – though not quite up to *Unreal*'s, but offers superior humanoid animation

The only way is up

Uprising 2 is less controversial, though the original's disappointing sales must have been cause to debate the worthiness of a sequel. Yet, in 3DO's opinion this type of game is still maturing, with games like *Uprising* and *Battlezone* suffering through consumer ignorance rather than weak content. Still, the 3DO division responsible, Cyclone Studios, jokes that *Uprising 2* is 'the last chance' for the genre.

Arguing that *Battlezone* got sidetracked simulating vehicles and wargames, *Uprising 2* homes in on action – just six keys and the mouse give you total control. Not bad – as well as driving your tank and deploying a wide range of weapons, the original's strategy options also remain, including tank factories and infantry units.

Units are more like one-shot weapons than *Battlezone*'s *C&C*-style mini armies. One-touch deployment, which sees the computer manage building and unit creation if you're more concerned with fighting, makes play easier still. But Cyclone Studios will need to be careful to ensure the strategy element isn't totally lost. In the version **Edge** played, it was too easy to destroy red dots systematically on the radar and to treat your troops as smart bombs. Moreover, depth of vision has been sacrificed for close-up graphic fidelity – which currently equates to bad pop-up. Much work remains before its December release.

You're disdainful of secular staples like shotguns. Why bother when you can turn your enemies into salt, plague them with locusts or boil their blood?





The original *Uprising*'s very impressive terrain engine has been enhanced for *Uprising 2*

A heroic performance

While *Uprising 2* and *Requiem* are promising, it's *Heroes III* that is most likely to be the company's major earner. The successful – if distinctively 16bit – *Heroes of Might and Magic* strategy games fill a gap created between *Warcraft II* and *Final Fantasy VII*. *Heroes III* is largely a graphical overhaul. Combat remains strictly turn-based (and makes *Final Fantasy VII* look like *Quake*) so while you're promised engrossing tactical gameplay, you'll have to look elsewhere within 3DO's expanding portfolio for fast-paced fighting.





***Heroes III* involves developing friendly cities, exploring new ones and amassing a mongrel Tolkeinesque army of elves, unicorns and wizards**


probe
ENTERTAINMENT
S T U

ACCLAIM HAS A PLAN. WITH ITS ODIOUS 16BIT CATALOGUE CONSIGNED TO HISTORY, THE COMPANY IS ENTERING THE NEXT PHASE: A SPATE OF QUALITY TITLES AND A FRESH APPROACH TO DEVELOPMENT THAT WILL CONQUER THE GAMING WORLD. EDGE VISITED ACCLAIM'S US HEADQUARTERS, WHERE THE FOUR CORNERS OF THE ACCLAIM DEVELOPMENT PROGRAM MEET, TO WITNESS THE PLAN IN ACTION…

Since *Turok: Dinosaur Hunter* exploded onto the scene in January '97, scattering preconceptions about thirdparty N64 games in its wake, Acclaim Studios has enjoyed a renaissance. Formerly known for a string of B-grade, licensed titles on the 16bit formats, the company made smart acquisitions – Iguana UK, Iguana US, Iguana West (formerly Sculptured Software) and Probe – but didn't stop there.

By promoting close communication between the four development houses that now make up the Acclaim Studios collective, the ADP (Acclaim Development Program) offers the potential to generate products that are more than the sum of their parts. The program lays down basic requirements for the creation of games, from projected development times to allocation of resources (technology, staff, programming libraries and so on). Still, with such disparate resources at its disposal, achieving synergy is no easy task. The man charged with coordination is Iguana US initiator **Darrin Stubbington**:

"We give them enough latitude to have their own personalities, their own culture. We let them keep a lot of things that made them them… Acclaim bought studios that were very separate, so there was still a lot of rivalry and to begin with it wasn't working." Casualties of the system included company founders George Mettos of Sculptured, Probe's Fergus McGovern, and Jeff Spangenberg of Iguana US: all now gone with little or no explanation.

Stubbington feels that now its constituents have warmed to the principles of sharing technology and talent, Acclaim can consider its development arm a 400-person company rather than four 100-person units. An ideal platform for consistently credible products…







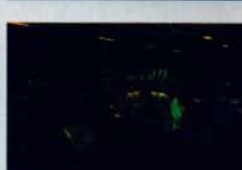




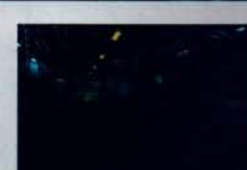
LEVEL HEAD

The game may have been inspired from a comic book, but Iguana has totally reworked the story as well as creating a whole new game world for the *Bloodshot* characters to exist in. The levels are impressively large. The engine required to handle the hugely ambitious outdoor levels should have its work cut out, but the team remains confident.









Bloodshot's team proudly boast about the size of the game's levels, which they believe to be some of the biggest yet on the PlayStation. Although _GoldenEye_ is also quoted as an inspiration for the project, Iguana is keen to point out that the overall feel is more action-based than Rare's Bond game, although it's not merely a simple shoot 'em up

BLOODSHOT

ONE OF THE PROJECTS UNDER WRAPS AT IGUANA UK's CLEVELAND HQ IS ANOTHER COMIC BOOK REVIVAL. TUROK CAME TO LIFE IN THE LEAP FROM BOOKSTORE TO VIDEOGAME, AND SO BLOODSHOT LOOKS DESTINED TO MAKE HIS MARK ON BOTH PC AND PLAYSTATION, POWERED BY A BEEFY 3D ENGINE



Designer Barry Meade (left) and project manager Nick Bagley are in charge of Iguana UK's *Bloodshot* development

The Acclaim comics brand stands accused. Not only has the gaming world been brought to a standstill by *Turok: Dinosaur Hunter*, and is on the brink of an assault from *Shadowman* (p52), but there is now a third crime: *Bloodshot*.

Currently shifting up a gear in its production at Iguana UK, *Bloodshot* strips out the best from one of the lesser-known Acclaim comics (but then, how famous was Turok before he went digital?). Lead designer **Barry Meade** was brought on to the project part way into its cycle, and immediately altered the course of development. "It started as an out-and-out shoot 'em up in 3D, but it's changed into a splice between hard action and some strategy elements, mixed in with information gathering, hacking and assassination." He's reluctant to cripple the game with the imposition of a genre; "If I was pushed, I'd call it an action-strategy game, but it's really down to how the player chooses to play it."

"We've taken the fundamentals of the comic, but not the story," continues Meade. "We've invented a whole new story – and, in fact, a whole game world." He adds, "*Bloodshot* never really went anywhere as a comic, but it had an awful lot of ideas which are good for games." Those ideas are more relevant to the basic situation that the *Bloodshot* character has to confront.

Project manager **Nick Bagley** explains: "In the comic he's a guy who's been killed and brought back to life by a government agency, using a secret technology. The agency's called DOA in the comic, which stands for Domestic Operations Authority, but we're going to play that down. At the beginning of the game, Bloodshot is more or less their enemy."

ROCKING COUNTRIES AND SHIFTING CONTINENTS

Bloodshot adopts a fixed thirdperson camera, although this will occasionally change for ingame cut scenes which will utilise the game's 3D engine. In line with current thinking on game diversity, Bagley and the team are trying to give players a non-linear experience. "The outcome of the game might not be different, but there are various ways of playing. You've got the all-out, dive-in-and-blast-everything-in-sight method, but in some situations that won't prove as productive as creeping around." As ever, Rare's Bond game is an influence, although Iguana UK's title is, "probably more action-orientated than *GoldenEye*, but it's that kind of thing," acknowledges the amenable Meade. However, his expression that, "This will be all-out, we're talking countries getting rocked, continents shifting," gives a good impression of what gamers should expect.

One of the main influences in choosing a thirdperson was that the team wanted *Bloodshot* to use vehicles when moving around levels (as in Argonaut's forthcoming *Kanaan* – see **E**62), as well as the usual selection of weapons that the game's shoot 'em up roots demanded. Bagley discloses that, "Bloodshot will be able to use various tools and vehicles to get through the levels – tanks, motorbikes, that kind of thing. There's quite a lot in there." Additionally, he will gain abilities as the game progresses, as does Shadowman. The introduction of vehicles entirely changes the nature of level design (as *Tomb Raider II* illustrated), and requires a leading edge 3D engine to enable the open environments involved. ("The levels are absolutely massive – far bigger than any PlayStation game we've seen," says Meade). The *Bloodshot* team feels that on PC, and more importantly PlayStation, their game has considerable 3D muscle.

"The technology took so long to consolidate that it made a big difference when we saw how much we could do, because it was a hell of a lot more than expected," grins designer Meade. "From what we can make out, we haven't seen a PlayStation game yet that can show what we can show. We can have eight 500-polygon characters running around." The 3D engine was partly responsible for the ambitious nature of the game. "We just thought that it was too good for a simple shoot 'em up, so we decided to raise the bar all round," he adds. As you might expect, competition between the *Shadowman* and *Bloodshot* teams is healthy. And if all goes to plan, Iguana has another winner on its hands.











Bloodshot **takes its inspiration from a little-known US comic series which Iguana felt had many good ideas that would transfer well into a digital environment. The game adopts a fixed thirdperson perspective which was selected due to a desire to include useable modes of transport (such as tanks and motorbikes, for example) when moving around some of the massive levels**



The *Shadowman* team, from left: Darren Falcus, Guy Miller, Simon Phipps and Jason Falcus











Another comic book license for Acclaim, and certainly the darkest, most disturbing one to date. Players must embark on a perilous, frantic journey in search for Dark Souls before these empower the world's serial killers currently roaming the streets. Critics of the N64 as a kid's machine are in for something of a shock. *Resident Evil* could look decidedly child's play by comparison

SHADOWMAN

A DARK AND BLOODY TALE, SHADOWMAN IS LIKELY TO EVOKE FEELINGS OF HORROR WHEN IT'S FINALLY RELEASED ON THE NINTENDO 64. AND, BY SUMMONING UP THE WORLD'S MOST NOTORIOUS SERIAL KILLERS TO DISPOSE OF THE HUMANS IN LIVESIDE, HORROR IS EXACTLY WHAT THE TEAM IS TRYING TO ACHIEVE…

Among casual gamers, the N64 still has an image problem – and let's face it, there's a grain of truth in the complaints. Nintendo games may have more graphical power than the PlayStation's, but they're usually dressed up in a technicolour dreamcoat worthy of a biblical tale. Breaking that public perception is proving a tough nut to crack – even the mighty *GoldenEye* hasn't administered the fatal blow. *Shadowman,* however, has brought a sledgehammer to the party.

While the game is to appear on both PC and N64, it's the significance of *Shadowman* coming to Nintendo that really matters. Iguana UK has taken the comic book source material seriously (*Shadowman* was one of the titles gleaned when Acclaim Comics was bought), respected its plot and character design, and is on course to create one of the most disturbing videogames ever seen.

PREPARE TO BE IMMERSED AND UNSETTLED

Following on from **Edge**'s exclusive first look at *Shadowman* back in **E**47, a closer examination of the game seemed apposite with *Turok 2* imminent. Settling down with Iguana UK's creative director **Guy Miller**, the dedication both he and lead designer **Simon Phipps** have for the project – and its atmosphere, was soon apparent. "You've got to be unsettled about where you are, and where you're going," says Miller, in his darkened office. He claims the game's plot will be second to none. "I don't think that anybody else has taken it to this level. We've taken two years to weave the plotline into the game. We've tried to immerse you, unsettle you, and get you totally involved in what the game's about."

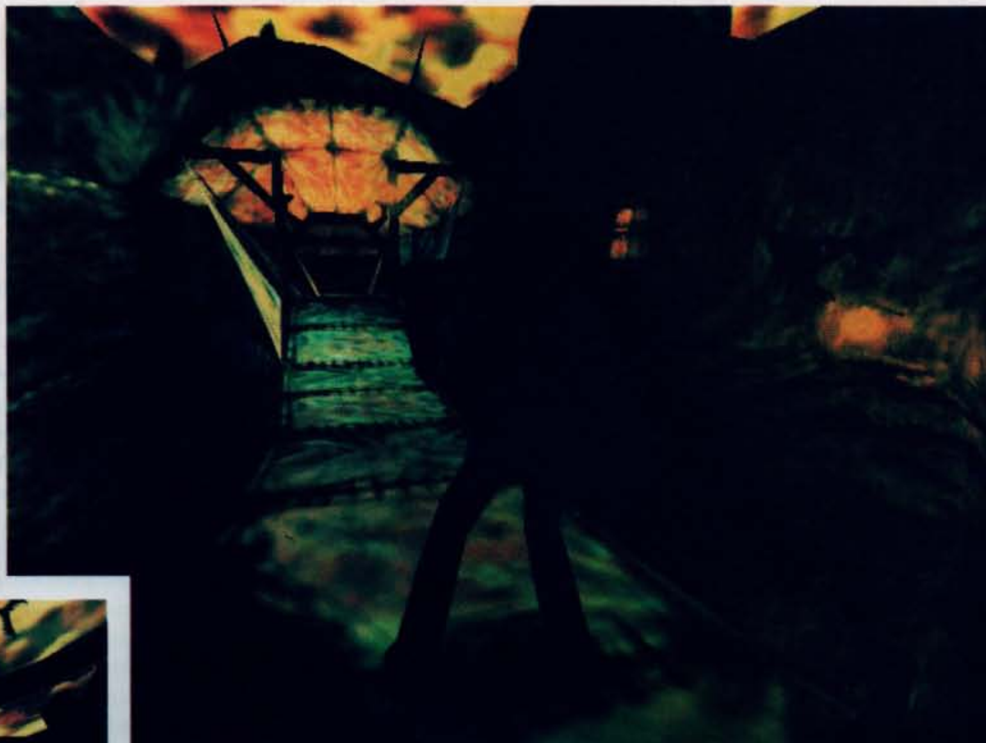
Plot is something *Shadowman* is almost dripping with, as Miller's description illustrates: "A great evil has entered the universe and has built something called the Asylum in Deadside. This evil is planning to unleash all the serial killers that ever lived into Liveside [the human world] through the Soul Gates. These need Dark Souls to power them, so Shadowman has to collect the Souls before they can be used." This evil force has unleashed the grandfather of all serial killers, Jack the Ripper, to do its dirty work for it. In one level, Shadowman must confront England's most fiendish killer in a beautifully reproduced 19th century underground station.

Iguana has retained the sickly graphical feel that typifies so many 'serious' comic books, such as the seminal 'V for Vendetta'. From one location to the next, the level of gore slowly escalates to the state of all-out bloodbath. Given that Miller describes the game's feel as "a mixture of 'Seven', 'Jacob's Ladder' and the end of the millennium," the blood-spattered corridors of certain levels seem apt.

HOLD IT CLOSE TO YOUR HEART

Phipps and Miller have worked hard to give *Shadowman* a strong structure to match its powerful plot and visuals. "The game progresses by Shadowman picking up various things to enhance his powers," explains Miller, "in much the same way as *Zelda* on the SNES. The Shadowman and his Liveside alter-ego Mike LeRoi are gradually enhanced through gaining voodoo tattoos, or Gads, and through acquiring sacred bracelets. They enable him to do various things, like pushing very heavy blocks, so there are certain areas of the game that he can't access," says Miller, "which enables the game to follow a non-linear path."

This free-roaming gameplay is something Miller holds close to his heart: "You can constantly return to the areas as they open up – you don't have to use the same route every time." However, he adds that while "you don't have to play it via the plotline, if you don't contract into the storyline, you really won't enjoy the game." *Shadowman* is structured so that you won't learn the full plot of the game ("Unless they've read the previews and reviews, of course," quips Miller), until you play it. Given that Capcom's *Resident Evil* isn't quoted by Miller as an influence, but the FBI's gruesome textbook for dealing with serial killings *is*, *Shadowman* players look set to face the paradigm in shocking action adventures. Just don't mention it to Nintendo.











***Shadowman*'s environments are as intricate as they are impressive. Although Iguana is unwilling to give away too much regarding plot details, at one stage players face Jack the Ripper in a highly detailed 19th century tube station. The levels are non-linear in nature, but players are urged to get into the story for best results**

HOUSE OF HORROR

In order for the whole terrifying effect to work, the visuals blend with the audio and plot elements to produce an almost threatening look that can be found in more serious graphic novels. The beautifully detailed and cleverly designed levels form part of what should be one of the most thoroughly unnerving experience to hit the PC and N64 platforms.



RE-VOLT

BENEATH THE TOY-LIKE APPEARANCE OF PROBE'S REMOTE-CONTROLLED RACING SIM IS A PHYSICS MODEL THAT WOULD MAKE THE BIONIC MAN WEEP. IN A GAMING WORLD OBSESSED WITH EDGING CLOSER TO REALITY, PROBE'S ATTENTION TO DETAIL RUNS RIGHT DOWN TO PUTTING BELIEVABLE AERIALS ON RE-VOLT'S CARS...



Creative director, Robert O'Farrell (Barg to his friends), and Nick Baynes, *Re-Volt* project manager (right)









One of the most striking visual touches is the way in which the cars' outsize aerials swing in reaction to acceleration and braking, when you're inevitably jostled onto the barriers or run off course by the opposition. The N64 and PlayStation versions remain surprisingly faithful to their more advanced PC counterpart

It's a startlingly realistic effect but is only the tip (literally) of a complex physics model lying underneath, which convincingly recreates the particular handling nature of the diminutive vehicles. "The guy doing the physics is actually a doctor of physics – he got his doctorate the week he joined, so he's really into it," says creative director **Robert O'Farrell**. "It's probably the thing that people are going to be most critical about," he continues, under no illusion as to the importance of good dynamics in a racing game, "and we really want to make sure that we achieve that – we know we can get the look, the special effects, all that sort of stuff. But the physics we really want to make sure that we get right, because I think that's the thing that people are going to go 'wow!' about."

But *Re-Volt* has more things in its favour than just lifelike shock absorbers. The visual aspect has not been neglected, and with myriad effects (reflective surfaces are particularly prominent), the PC version is currently looking pretty polished while maintaining an impressively fluid update. It's something **Nick Baynes**, project manager, finds hard to remain impassive about.

"It must be one of the best 3D engines out there at the moment – even on lower speed machines," he enthuses. "I've run the game on a P133 with a 3Dfx card and you get a constant 25/30fps – and that's with all the effects turned on."

The other versions are surprisingly close to matching the PC's graphical showcase. "The programmers are working really close together so that the physics are actually going across to the N64 and the PlayStation," reveals O'Farrell, "and, as far as the engines go, they're sharing code a lot, especially the N64 and PC guys – they're really working closer together."

So *Re-Volt* is a racing game, then. Fast-paced multiplayer battle racing, no less. Players start off with eight cars (a total of 30 exist) to choose from and get rewarded with extra cars and tracks for winning races and exploring every area of the game. Single players eventually go on to master 16 tracks set, among others, in a natural history museum and a fantasy toy shop, while bringing friends into the equation gives the eight battle circuits a sense of purpose, as players chase each other in a frantic game of tag. The team has until next June to concentrate on gameplay. A close look at *Mario Kart* and *Micro Machines* shouldn't hurt...



GOOD SPORTS

ACCLAIM'S SPORTS BRAND HAS CULTIVATED A REPUTATION FOR QUALITY OVER THE LAST 12 MONTHS. BEGINNING WITH QUARTERBACK CLUB '98 – THE FIRST TITLE TO EXPLOIT THE N64'S 640x480 HIGH RESOLUTION SETTING – A STRONG UNDERCURRENT OF TECHNOLOGICAL PROWESS HAS BECOME EVIDENT

Most recent of these is Iguana West's well-received *WWF Warzone*, which employs a powerful and adaptable new graphics engine called Quagmire, which will form the basis of many of Acclaim Sports' future titles.

Apparently, the 3D engine was given its eccentric moniker by its programmers during a torturous period of development. Their struggle was worth it, however, as Quagmire has enabled the Acclaim teams to create incredibly detailed visuals for their titles. The first game to use Quagmire was *Allstar Baseball 99*. Project manager **Jaime Grieves** explains its appeal.

"It allowed us to do a complete 3D animation system with full motion capture, instead of a sprite-based system as in the past," he explains. "Rather than having animations captured in eight directions, we get one motion that moves in all directions." Grieves is now working on a sequel, concurrently targeted at N64, PC and possibly Dreamcast if the machine's US installed base is high enough. While he reveals that *Allstar Baseball 99* featured around 50,000 frames of animation, the follow up (unsurprisingly dubbed *Allstar Baseball 2000*) is set to feature an even greater amount of incidental details to extend the sense of realism. "At the moment everybody does a straight base slide, but we're looking to change that, to add more interaction when you're sliding."

More immediately, the American Football title *Quarterback Club 99* is ready for release, and features a similar attention to detail. The previous game's 3D engine has been jettisoned in favour of Quagmire, as team leader **Bill Lacoste** explains; "It allows us to take the raw data from the motion capture shoot and just plug it right in. You capture 300 frame run and you can leave it all in there." In addition, there has been a focus on improving character AI, with New York Jets offensive coordinator Charlie Weiss brought in as a consultant on the project.

Of the final two titles currently in development on the new 3D engine, UK gamers will find the *NBA Jam 99* of more interest than hockey simulator *NHL Breakaway 2000* – the *NBA Jam* franchise's popularity in the 16bit era gives it an immediate relevance in Britain. New features such a historical mode, where players can opt to re-enact a series of famous matches, plus complete player rosters should ensure *NBA Jam 99* has a broad appeal.



Acclaim US coordinator Darrin Stubbington





















While last year's iteration of *Quarterback Club* was well received by both gamers and press, the 1999 version has been totally overhauled. As with the other Acclaim Sports titles, *QBC 99* is powered by the oddly named Quagmire 3D engine. Incidental animations are used to create a more believable feel

***Allstar Baseball 99* from Iguana US was the first to use Quagmire, something which the team is rightly proud of, although being 'guinea pigs' presented its own difficulties**

Seasoned gamers will doubtless hold the original *NBA Jam* in high esteem. Iguana West's *NBA Jam 99* looks set to build on the raw appeal of its predecessor with new play modes



beyond polygons

NURBS / POLYGONS / VOXELS / TESSELLATION / PIXELS

What will 3D models based on curved surfaces mean for the trusty triangle, and will the hardware world be able to deal with new ways of building 3D environments? Edge goes back to the drawing board...



The triangle. Such a simple and ideal shape – and yet it has founded a whole school of mathematics. More importantly, triangles are the constituent element of just about every virtual world you enjoy. They are, if you will, the carbon, hydrogen and oxygen atoms making up the realistic environments found in games. After all, an approximation of any 3D shape can be built from triangles, the most basic of polygons.

As developers drive for greater realism, however, to many, the triangle may soon wane as the building block of choice. Even when large numbers of them are devoted to ingame objects, their angularity crops up time and again to hinder the suspension of disbelief. And as the real world is full of smooth curves – from palm fronds to the sporty lines of a Porsche – there's increasing impetus among games developers to find better ways of representing a curved surface.

Just as mathematics proffers the triangle as a convenient basis for 3D models, so too it offers equations to describe smoothly curving 3D shapes. Calculating models generated using formulae for curves instead of triangles, the processor in a console or PC can theoretically create worlds that look natural. With smooth skin, curvaceous bodies, almond eyes and flowing hair, the so-called cyberbabes of the future may make the distractions of videogaming even more difficult to put aside. Could tomorrow's rounded graphics spell the end for the trusty triangle?

Images supplied by: Abdul [illegible]

NURBS / POLYGONS / VOXELS / TESSELLATION / PIXELS

Don't hold your breath

In short, the answer is no. Or, more prudently, not for a long time. Current and future generations of 3D hardware are totally geared to rendering polygonal models. They offer little or no acceleration for other systems, and this is generally the case on consoles, PCs, and even on CG workstations. However, as new 3D hardware gives these games machines the capacity to handle ever greater numbers of triangles – there's talk that Nvidia's TNT chip will handle anything up to two million polys per second sustained – far superior approximations of curved surfaces can be created onscreen.

At the same time, mathematics for handling curved surfaces (handed down from Silicon Graphics' technologies) will mean that curvy objects will be created far better in software. Whereas previously, models began and ended life as an assembly of triangles – be it a car, house, robot, landscape or character – now games using curved surface models (at least in the early stages of scene generation) are starting to emerge, which takes place on the processor under the control of the game software. Only at the end of this process are any curves tessellated into polygons, which are sent to the graphics chip for rendering.

There are all sorts of methods 3D programmers can use to represent curves. One popular method is NURBS (non-uniform rationalised B-splines). Implemented in 3D design software such as *3D Studio MAX 2*, the NURBS technique involves creating a series of curved splines to delineate the edges of an entire object, joining them together, then shading and texturing the model.

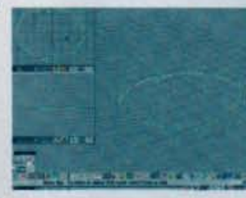
NURBS prove very useful for modelling things like carved objects, the parts of an insectoid character, or general landscapes. And to some game developers, NURBS are the way forward. With environments which can be altered by the actions of players, one game to implement this type of modelling will be *Prey* by 3D Realms. "They are the future, and in fact *Prey* will have NURBS," says **Scott Miller**, partner and leading light in the company.

Of course, *Prey's* NURBS models will be tessellated to polygons at the end of the scene generation process. Furthermore, it's likely that the game will employ polygonal models for some of its objects. NURBS aren't a solution upon which to base an entire 3D engine – they're just a convenient way of creating some of the objects.

NURBS AT WORK

A non-uniform rational B-spline, or NURBS for short, is simply a line that's defined by a special formula and used to mark out the edge of a 3D model. Here's a 3D rendering package employing just such a technology...

1



First of all the spline is defined using the software's tools. Each point added to the line gives its curve new definition.

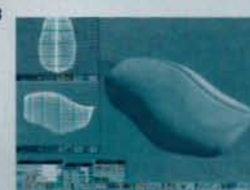
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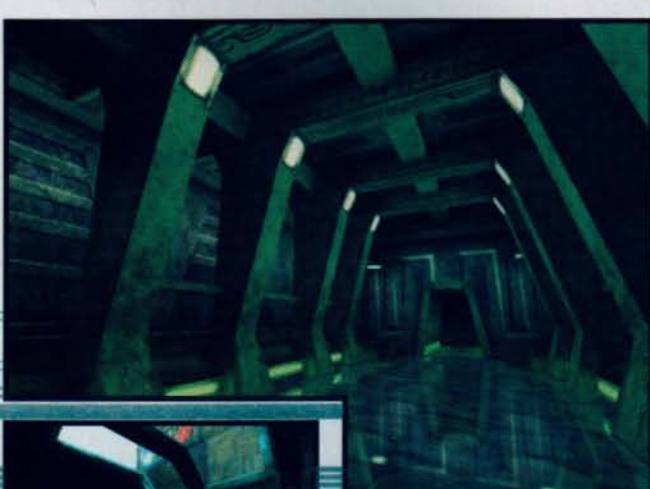
Then the spline is duplicated and slightly altered numerous times to give the object volume.

Finally it's shaded, and a texture can be added later. In this case, an insect's torso has been created.

3



NURBS aren't a solution upon which to base an entire 3D engine, they're just a convenient way of creating some of the objects





***Prey* from 3D Realms will be one of the very first games to employ NURBS in the construction of some of the game world's curved surfaces**

Curves in all the right places

To **Dominic Mallinson**, development guru at Psygnosis, NURBS are no longer the holy grail they were several months ago, when many in the industry were raving about *3D Studio MAX 2*. Why does he no longer see them as a key solution? "When you look at the types of models you're expecting to get in a game – rolling landscapes, buildings, a few spaceships, some cars and some characters – you've got a great deal of mixing and matching between polygonal edges and the curved surfaces of the characters," he explains. "You cannot use NURBS to describe all of those. It's possible to use NURBS on specific items within the scene, but if you take something like a character, you

would have to break it down into multiple NURBS. Then actually joining them together is quite complicated. I think it's more likely that we'll get a mix and match approach that is more suited to simple curved descriptions – not complicated ones like NURBS, but simple ones like patches."

Curved patches are now widespread in games currently in development. Objects can be constructed in the same manner as polygon models, but instead of flat, triangular surfaces they have small quadrangle patches with curved surfaces. The curves are often defined by bezier or quadratic equations.

ID Software's *Quake III Arena* is one of the most highly anticipated games to employ patches. While the game's characters will be dense polygonal meshes, it's in the game environment that the curves will come into play. "That's where we set them up so we can have arches, pillars, that type of stuff," says **John Carmack**, id's celebrated 3D genius. "The nice thing about curves is that they complement the per-pixel specular highlighting a lot, so you get a nice convergence of features where you get compound curves bending around somewhere with a specular highlight shining across the different materials on the object. That looks really good and doesn't cost us that much speed."

While Carmack is coding *Quake III Arena* to employ rational bezier patches, he may also add support for non-rational bezier patch nets. This will enable NURBS models to be imported into the game at a later time. That would have potential usefulness to anyone designing, for instance, a *Quake III* add-on pack, who wanted to introduce NURBS-based objects to levels.

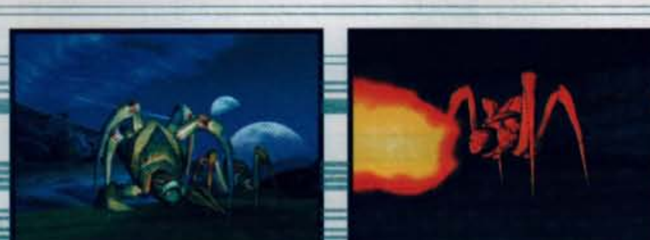
The widespread introduction of models based on curved surfaces brings with it other challenges. More curves in a scene means more polygons are required to make them appear continuous (and not angular) at the render stage. These demands have led to interesting innovations in the field of tessellation. First, curved surface issues aside, many games will tailor the number of polygons they create according to the user's machine. For instance, *Quake III Arena* on a Voodoo 1 card will push 300,000 polygons a second, while Carmack reckons that on a TNT graphics card he'll display around a million.

While the game's characters will be dense polygonal meshes, it's in the game environment that the curves will come into play

Tessellate wildly

Second, games in development – such as Shiny Entertainment's much-vaunted *Messiah*, id's *Quake III Arena*, *Evolva* by Computer Artworks and *Battlezone II* by Pandemic Studios – are all going to use dynamic tessellation systems. This means the game software can automatically alter the number of polygons (and therefore processing power) devoted to any given object.

Mark Dochtermann, who is working on a new 3D engine for Ritual Entertainment, explains how it works: "Let's say we want to make a column. Well, if we use standard polys, we would create an approximation of a column with maybe 20 sides. The column would look pretty circular but upon close inspection you could still see the distinct polys. This same column in the new engine would be represented by four sides. Each side would have the same



In development at Computer Artworks, *Evolva* employs bezier patches to achieve smooth curves on many ingame objects, such as this spider

TEXTURES THAT MATTER

The number of polygons onscreen and the curviness of the surfaces they represent is one thing, but another important matter in graphical quality is how the 3D world is textured. Lionhead Studios is one games firm taking strides in this area, with its AMMS-DTB (Adaptive, Massively Multi-Sourced, Dynamically Texture Blending) system. The aim is to get away from artificial-looking landscapes and achieve more natural, or even chaotic, terrain textures.

"Basically, we use a mathematical function based on the elevation of the map and the type of terrain," explains **Jean-Claude Cottier**, who is working on implementing the textures in *Black and White* (below), Lionhead's debut game. "We feel that it's very important to have the ability to dynamically change all aspects of the game in realtime – the landscape, the textures, the characters, the sounds, everything. I think that the next *Doom*-like game will support similar techniques. When you shoot a bad guy you don't just want to see him limp – you want to see a wound open up and blood flow down his leg, staining his jeans and leaving a trail on the floor."

Computer Artworks' evolution, and A-life-based title *Evolva*, meanwhile, will feature creatures with varying textures. Textures will evolve differently for creatures in the game being handled by different players. Other work on algorithmic or procedural textures is being carried out at Pandemic Studios where *Battlezone II* is being designed. "In *Battlezone II* we are experimenting with these sorts of techniques to texture the ground. It makes a lot of sense, because it's possible to make mathematical models that will predict where the ground might be icy, or where a pool of water might form, and texture them on the fly accordingly," says the game's director, **George Collins**.



Jean-Claude Cottier, texture designer for Lionhead's debut title *Black and White*, demonstrates his technique by making the company's logo appear dynamically from a landscape surface

CURVED SURFACES & THE CONSOLES OF TOMORROW

While the PC world is in a state of permanent revolution when it comes to 3D hardware, the console scene only leaps forward when new hardware arrives. With Dreamcast announced and PlayStation 2 in the pipeline, **Edge** asked three British developers about the potential of the new machines to handle curved 3D surfaces...

Jez San, Argonaut:
"I think hardware and software to tessellate patches into polygons on the fly is likely to be in PSX2, and other newer games consoles. NURBS are probably not going to be used in games consoles in the short term as they're complicated to implement and don't lend themselves well to present hardware technology. You'll notice that no one, not even SGI, SUN or HP, have NURBS support in hardware, but they have advanced CPUs that do them in software very fast."

Mark Atkinson, Computer Artworks:
"Dreamcast is basically similar to the PC, so the same techniques (the use of bezier patches and their tessellation to polygons) apply. For PlayStation 2 it's not unthinkable that Sony could go for a patch renderer, although that's pure speculation right now."

Dominic Mallinson, Psygnosis:
"PlayStation 2 is a completely unknown factor at the moment. I think I'd like it to be able to do more than just polygons. I'd like to have the flexibility. All models are built on primitives and it would be nice to have a primitive that describes a curve. But it *isn't* the holy grail which, to some extent, was my opinion a while back."

curvy surface making up a perfectly round column up close, and a rough approximation of a column from far away. That would be a net saving of 16 polygons. Granted, as we move close to the curvy surface we are looking at a lot more than 20 polygons, but we aren't seeing 20 polygons all the time, and that is what counts."

The third piece of the puzzle is specifying required levels of detail. In simpler tessellation engines the level of detail (LOD) of an object is defined simply by how far away it is from the player's viewpoint. The software may have several set-models for each ingame object, stepping from a low to high LOD model as they move towards the player. In better engines, however, the game will have continuous LOD models which, instead of jumping from low to high detail at given depth nodes, keep high LOD models in memory and reduce the complexity of their polygon meshes on the fly, according to both the PC's power and the object's depth within the scene.





The makers of *Interstate '82* have baulked at including car damage which could affect the number of polygons onscreen at a given time. New tessellation techniques will solve this little problem

A character's face is very important, as are visual clues that may be integral to the gameplay, such as being able to see weapons or ammo

Facing up to detail

Programmers and artists are now beginning to specify areas on objects that should always maintain a high level of detail, no matter what their position in a scene. A character's face, for instance, is very important, as are visual cues that may be integral to the gameplay, such as being able to see what kind of weapon an enemy is holding or even how much ammo he has.

With tessellation, programmers need no longer be afraid of changing the LOD on an object. Whereas the developers of *Interstate '82*, due out in January 1999, are not allowing the cars in the game to be deformed by damage sustained because increasing the number of polygons causes slowdown, in tessellation engines this wouldn't be such a problem.

Tweaking the number of polygons onscreen according to given circumstances in a game gives payoffs in playability. "You can also vary the

TOMORROW'S PROCESSORS

The capability of emerging CPUs will play a massive role in how polygons and curved surfaces are handled in PC games. Already, AMD's 3DNow! chip has greater built-in assistance for the floating point maths operations crucial to the building of scenes out of either polygonal or curved surface models. Intel, meanwhile, is working on its Katmai chip, which contains a similar set of special instructions. "Vector algebra is the foundation for computational geometry and most notably the mathematical technique used to express 3D primitives. Higher order primitives beyond polygons, such as NURBS and bezier patches, will benefit greatly by how Katmai's new instructions perform multiple vector operations within a single instruction," explains **Ray Sturges**, platform architect manager at Intel.

Furthermore, the special instruction sets of Katmai and 3DNow! will help with tessellation, making scaling levels of detail even more feasible in games. **Edge** expects a number of games to support it at launch. Possibly even *Quake III*.

In the long term, id Software's **John Carmack** believes CPUs may one day absorb the functions of 3D processors, and maybe even system memory, too. This will have important ramifications for how graphics are handled. "The early ones are going to be exactly like you've just rammed chips together. But when people step back and re-engineer those to take real advantage of the fact that they're on there, instead of just plugging two dyes on the same chip, then it opens up the possibility for some finer-grained controls over graphics rasterisation and the sharing of resources."



Ray Sturges waves the flag for Intel's Katmai, a processor that will aid 3D scene generation, animation and tessellation systems

Tweaking the number of polygons onscreen according to given circumstances in a game gives payoffs in playability









Kanaan* (top) uses bezier patches, but one day all games could look as good as this demo animation done using *3D Studio Max

Images supplied by: Electric Film Factory

detail dynamically to keep the framerate up," says **Mark Atkinson**, technical director at Computer Artworks. "For instance, if a few players converge and there's a big firefight, you usually get terrible slowdown just when you don't want it. With dynamic LOD, the engine can just drop the detail level a bit, which you probably won't notice, and keep the framerate at acceptable levels. This is clearly the way forward and any 3D game released in 1999 without a good LOD system will be dead in the water."

Nevertheless, as processor power increases – particularly on the PC – allowing game developers to use huge numbers of polygons, we'll begin to reach a stage where levels of detail are so high that polygons are actually smaller than screen pixels. It's at this stage where the returns diminish and there is the temptation to cast around for a per-pixel system of 3D scene generation. With the hardware acceleration situation being so geared towards polygons, however, many developers would sooner stick with triangles and turn the extra power over to other gaming issues.

"Naturally, I agree that curve rendering is part of the future of 3D gaming," says Argonaut's MD **Jez San**, "but there are plenty of other things to do

PROGRESS & POSSIBLE PROBLEMS

The ongoing drive towards realism, of which the arrival of curved surfaces is a major element, isn't without its drawbacks. As **Scott Miller** of 3D Realms notes, the real world is awesomely complex, and if game developers expect to mirror it ever more accurately there will be costs. "I think a growing problem is that as technology progresses, we're able to make levels with incredible detail, and this adds greatly to the development cycle of games," Miller tells **Edge.** "Soon we'll be able to replicate real-world environments to the smallest detail, but this will mean that level designers will have a lot of work to do, and I'm not sure if the financial returns for this amount of work will pay off for developers. At some point we need to find an easier way to create levels, or stop adding detail."

MORE POWER TO 3D CARDS

As most people in the graphics industry will tell you, what's happening on today's games machines is very much a trickle-down of technology from Silicon Graphics and the world of high-end 3D workstations.

For the next advances in 3D processing, you just have to look at what's already occurred on the top-end graphics cards. Chips like the Glint Gamma by 3D Labs, Intergraph's Realism 2 and others by HP already include some geometry acceleration. Lighting and matrix maths are two segments of the 3D pipeline that we could soon see being handled by graphics accelerators. But will 3D accelerators ever be able to handle curved surface models directly, without the game having to convert them into polygons first?

"Absolutely," says **Scott Sellers**, development chief at 3Dfx. "This is exactly what we showed at the Game Developers Conference this year. It will take some time for developers to wrestle with the difficulties associated with higher order surfaces, but it's certainly a step in the right direction for the industry. When 3D graphics engines natively accelerate curved surfaces is another question entirely, as developers still don't know whether NURBS, B-splines, bezier or bicubics or whatever is what they really want. You'll see several generations of games using higher order curved surfaces and performing dynamic triangle tessellation in software first, then those algorithms will get implemented in hardware. Hardware companies have attempted to accelerate curved surfaces before – for example Nvidia's original NV1 – and were met with abysmal failure because it was not what developers wanted. We believe that software developers should drive the feature set of future hardware accelerators, not the other way around."



Despite the comments of some game developers, Scott Sellers of 3Dfx believes 3D cards will one day support curved surfaces without the need for tessellation to triangles in software

with polygons that haven't been done very well yet, like improving the quality of lighting, shading and texturing. Another thing I think will be a big factor in future 3D gaming is better attention to realtime physics. The CPU power is here to do rigid body dynamics with constrained articulations. This enables you to simulate the movements of realistic characters. Once you have a generic physics system, you're able to do anything from a realistic simulator, all the way through to cartoon-style ['Tom and Jerry'] physics."

Instead of handling millions of tiny polygons, many things can be represented more economically using continuous curved patches

Voxel cavalier

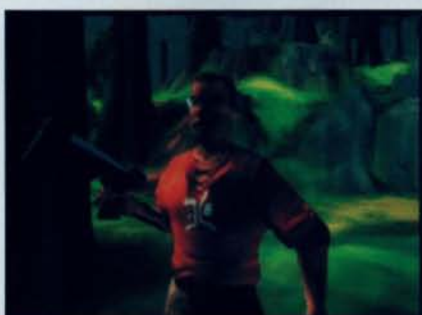
The fact remains that polygons will most likely shrink to pixel size, and to id's John Carmack this is when things will get interesting. "There's definitely an important issue going on there, where we are beginning to approach the end of usefulness of triangles as a rendering primitive. The whole point of triangles is to get coherence – to get multiple pixels from a single primitive description. When you reach the point where the support area of a triangle is a pixel in size then you're not really benefiting from that."

For Carmack, the problem illustrates the stage the 3D games industry is at. To him, polygonal models are somewhat equivalent to vector-drawn graphics or PostScript fonts, where shapes are reduced mathematically to outlines. What's desired at the end of the day, however, is game imagery that is more or less a digital sample. "We're still actually in the 'vector outline' stage of 3D graphics, rather than the strict



This demonstration of curved patches, using software written by Argonaut, illustrates how increasing the number of small surfaces incrementally can change the smoothness of the shading on the final textured image to create a high quality image





Tiberian Sun **(top) and** ***Outcast*** **(above), both titles use voxel engines long before their time**

'digitally sample everything' stage, which does imply a voxel model at some point," he says. "I think there's a huge benefit to going to a digitally sampled 3D environment. There are so many calculations that are so much easier there. The engines have a whole lot of elegance to them where you don't have to solve the level of detail separately. They kind of fall out of a raytrace engine into a voxel world. I do think that is where the future will be."

The trouble is how that future is arrived at. All the real power available in 3D hardware is concentrated on rendering polygons, and there's nothing to accelerate voxel engines. Though games like *Railroad Tycoon 2*, *Tiberian Sun* and *Outcast* make a reasonable stab at voxel technology, and the fact is that you can use any sort of model or surface in a voxel engine, hardware support still points to polygons, even if those polys are shrinking to pixel size. For Carmack, it will be at least five years before any transition is made away from triangles as a basis for rendering.

The introduction of curved surface patches into game software does at least offer some respite for the processor. Instead of handling millions of tiny polygons many things can be represented more economically using continuous curved patches. These will then be converted to polygons just before going to the graphics hardware. Alternatively, 3D accelerators that can convert such surfaces to triangles themselves may arrive, freeing the CPU of the burden. In some ways, the usefulness of the triangle is waning. We'll be seeing a lot more triangles for quite a while to come, but that also means our games will be curvier than ever. So bring on the next Lara Croft.





Like ***Quake III Arena*****, Shiny's** ***Messiah*** **employs dynamic tessellation to control the number of polygons on the screen at a given stage in the gameplay**

TAKE IT TO THE MAX?

To gauge opinion as to how quickly visual quality will develop in 3D games, with or without polygons, **Edge** asked a number of developers the same question regarding render quality. The answers were surprisingly varied...

Edge: When do you think 3D games will look like they were rendered in *3D Studio MAX*?

Mark Dochtermann, Ritual Entertainment:
"Two years, tops."

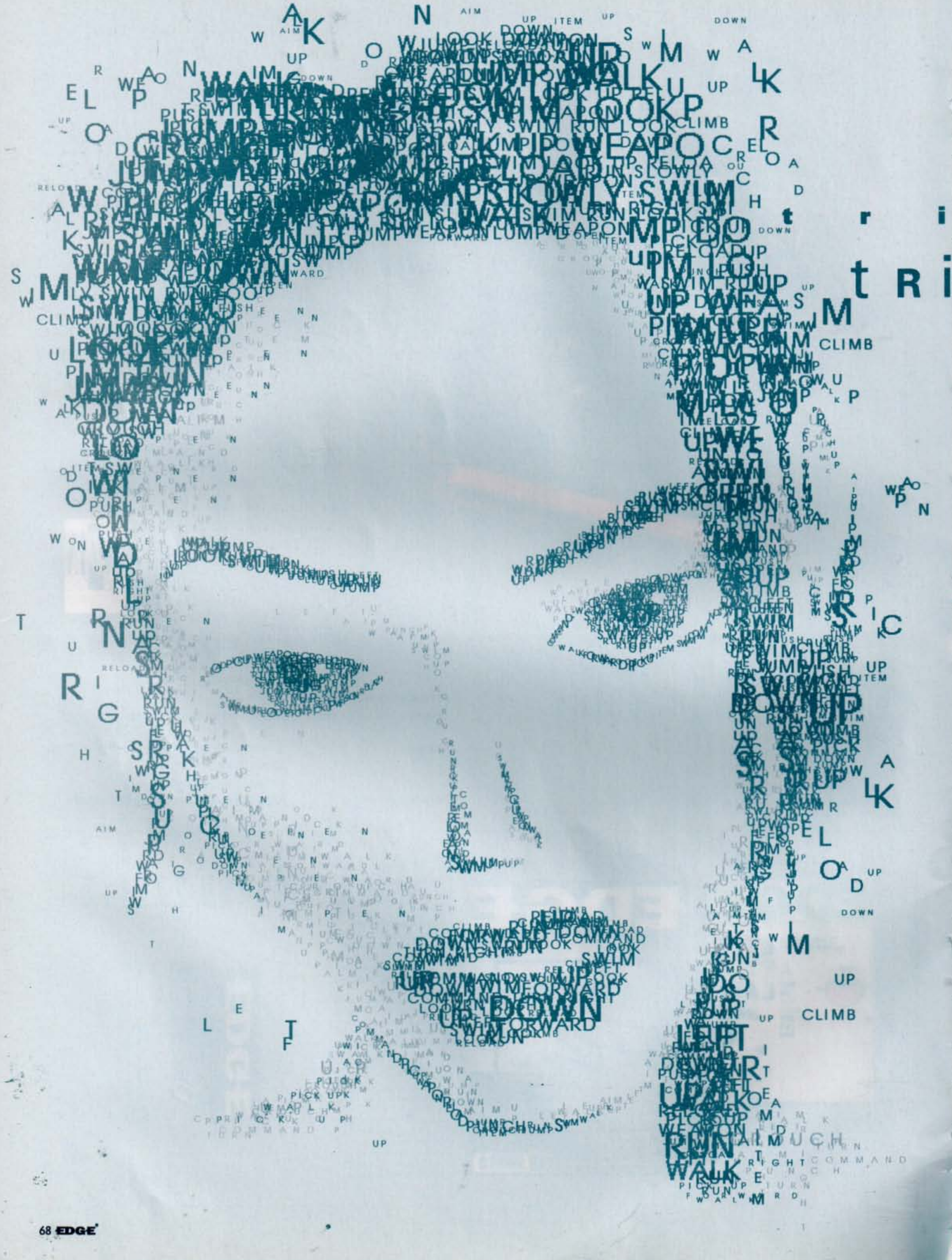
Max Elliot, Presto Studios:
"We're probably looking at 20 years or so. The problem is not the hardware, it's here already. It's the cost."

Mark Atkinson, Compûter Artworks:
"It'll be the day *Evolva* is released [joking]. We're really not far from render quality in many aspects already."

Scott Miller, 3D Realms:
"It's not too many years away."

John Cooke, Pandemic Studios:
"That's what we're actually shooting for. Not soon enough!"

George Collins, Pandemic Studios:
"A coin-op system could have that quality of display in just a few years. PCs might be able to do that in a few years, but the question is when that sort of graphics will be cheap enough for everyone..."



TRICK OR TREAT

Realtime lighting, environment mapping, the extravagant use of polygons – today's videogames can handle them all. Or can they? Behind the scenes developers are breaking the rules to create the acceptable faces of '90s videogames. Edge investigates the shadowy world of digital duplicity...

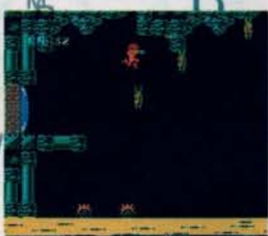
Whoever said cheats never prosper obviously never designed a videogame. Cheats are everywhere in this industry. Cheats write the games, and then cheats go on to market them. This sounds like a damning indictment, but really it's not. Cheating is a necessary evil. In fact, it is often the only way to meet the demands of the audience while remaining within the limits of the technology. The games most admired today – *Quake*, *Incoming*, *Tomb Raider 2* – all cut corners, compromise and economise with the truth here and there. And, if they didn't, they would bear a far paler shade of playability.

Cheating to get by

Of course, this is by no means a new story. Take the ZX Spectrum, for example. Many of its more visually attractive titles featured large slabs laid on specific sections of the screen where the score, lives, etc were shown, while the actual game used only a marginal portion of the display.

This was no aesthetic whim. Because the Z80 processor wasn't exactly herculean, it took longer than the frame flyback to draw everything that needed to be drawn onscreen, which would cause the game action to flicker and glitch. However, if the actual game part of the screen was lower down the screen, for example, the programmer had all the time it took for the frame refresh to make it down to that level to draw the graphics. A cunning ploy.





Most screens of Spectrum games (top) include a huge slab of score data, reducing the game area and so give the processor more time to think. *Metroid* (above) on the NES is less forgiving









Multiple models keep *Metal Gear Solid* (top right) and *Spyro the Dragon* (far right) running smoothly. *Croc* (right) points the camera down instead. *Magic Carpet* (above) simply opts for fogging

There are plenty more examples of hardware deficiencies overcome by clever programming. The Atari ST, unlike the Amiga, had no hardware scrolling abilities – the machine's screen memory mapped in bitplanes, with four bitplanes across the screen; a great system for moving large chunks of graphics, but terrible for shifting pixels. This meant that most early games on the system featured no horizontal scrolling at all (see *Speedball*, for example – the pitch is only a screen wide). However, programmers got round this by 'pre-shifting' pixels – instead of scrolling a single object across the screen, they stored 16 versions of the object and cycled through them. Not strictly above board, but it got the job done.

Plus, most of the pre-16bit consoles limited the amount of sprites the screen could display along a single line at any given time. This nasty limitation could only be overcome by the implementation of clever sprite sorting routines which would display different sprites on different frames of action. This covert technique did of course lead to a lot of sprite flicker, but that was a whole lot better than having the lead character and three of the baddies disappearing from view altogether for a couple of seconds.

Technology has always lagged behind the ambitions of developers. Which means cheating is more or less built-in to the history of games programming.

***Pushed out as a feature** in games like Magic Carpet and Myst, players are now all too aware that **fogging is used to limit the amount of scenery** the game has to draw*

Cheating to improve

In the '90s, PC and console hardware can cope easily with the basics of 3D visuals. However, tricks still need to be employed to keep framerates up, and occasionally these tricks are abundantly obvious. Fogging may well have been almost pushed out as a feature when it was first tried in games like *Magic Carpet* and *Myst*, but now players are all too aware that it's used to limit the amount of scenery the game has to draw. Similarly, flight sim developers once made a big deal out of the intricacy and realism of their onscreen cockpit layouts, somehow forgetting to mention that the larger these displays were, the smaller the actual 'action section', and therefore the lower the demands placed on the 3D engine.

As gamers become more sophisticated, though, these heavy-handed approaches are losing favour. The trick now is to come up with techniques that shave milliseconds off the processing speed without you even noticing that the game world has been compromised. In *Tomb Raider II*, for example, the programmers avoided





Particle System's *I-War* created high-quality textures for its ingame craft by rendering out still images of the prerendered spaceships (left)







Baddies in *Tomb Raider II* (above) can walk through solid matter, simplifying path-finding. Naughty Dog gets the processor power to create its lavish *Crash Bandicoot* (right) by cleverly, and severely, restricting the view distance

having to come up with processor-intensive route-finding code for the baddies by simply allowing them to walk through many of the scenic objects Lara can't. It sounds like it should be pretty noticeable, but in the heat of the action the player rarely spots that anything is amiss.

It seems every developer has its own way to beat the framerate/decent visuals trade off. Particle Systems came up with cheats for *I-War*, the original version of which employed no 3D card support. "We needed cool-looking spaceships, which of course means loads of detail and bucket loads of polygons," explains **Glyn Williams**, the company's creative director. "But for the sake of performance we had to keep the polys to a minimum. So we rendered out still images of the high-definition spaceships created for prerendered sequences and map these images back on to the low-def models. Bingo! Instant detail."

James Russell and **Mike Kavallierou**, developer support engineers at SCEE, spot much of the speed-saving subterfuge committed by PlayStation developers. "*Metal Gear Solid* has more than one 3D model for its main character, depending on the view," they begin. "From some angles, it's easier to have a low polygon count with crappier textures because the player won't notice. Similarly, some football games have many different models of the players – the closer they are, the more detailed the player. This means they can draw lots of players far away and the processor can still cope. It's even the same with *Gran Turismo* – the car models are of a higher quality on the selection screens where the game has nothing else to draw."

"*Spyro the Dragon* does the same sort of thing but with backgrounds," continues Russell. "There are actually two different background renderers in the game – near and far – both completely different. This enables a much larger poly count because the 'far' background consists of non-textured polys which are slightly faster to draw. The renderers perfectly change between textured (near) and non-textured (far) without the player noticing."

There are many more techniques working along similar lines. Pointing the camera downwards (*Croc*, *Rascal*, etc) releases 3D platform games from having to draw way off into the distance and slowing right down in the process. In a similar vein, designing each level/track with plenty of narrow valleys and twisty-turny paths ensures that the player never sees more than a few hundred yards ahead. This means the game only ever has to draw close surroundings, reducing the amount of polys that have to be drawn and so preventing ugly scenic pop-up on the horizon (Naughty Dog employs this little ruse throughout its visually opulent *Crash Bandicoot* series). The framerate scam, it seems, is as valuable a part of the game designer's repertoire as any 3D art package.

> ***The 'advanced' lighting*** *in Forsaken is actually very simple to do, but the effect looks great.* ***Another marketing myth bites the dust***

Cheating to impress

In today's hugely competitive software market, it is not enough to boast about a fast 3D engine; gamers are hungry for special effects. The rise of the 3D card, together with the cult of the console custom chip, has led players to expect realtime imagery approaching the quality of SGI rendered intros. 'Realtime' is the current







***Gran Turismo*'s fine FMV sequences (top) give way to some trickery-intensive in-game visuals (above)**

THE FIRSTPERSON SHOOT 'EM UP: *BORN TO CHEAT*

It is no coincidence that so many advances in the field of ostentatious special effects have come from the firstperson shoot 'em up. The genre is a veritable cheat's paradise.

Doom started it. Heralded as a revolution in 3D gaming, the title didn't have a true 3D bone in its body – it was all just clever 2D programming. Take a look at any of the game's level maps again – the engine never has to make any height calculations, because none of the corridors ever go above or below each other; it doesn't matter where you stand, the computer can always work out at what height you really are. The camera angle is also fixed so, again, the engine has much less work to do. Okay, the player can't look up or down, but this doesn't matter. Because there are no real height calculations, it's possible to shoot at baddies even if they appear higher or lower. To keep the speed up, there are also no slopes or arches – each level is made up entirely of vertical blocks. *Doom* is a classic example, proving that not only do cheats prosper, but they also become legends.

Today's firstperson shoot 'em ups may well be true 3D and filled with complex architecture, but the genre still saves developers so many potential headaches. For a start, titles like *Quake* and *Forsaken* tend to be corridor or chamber based, which restricts the amount of landscape needing to be drawn and keeps the framerate up. Also, the firstperson view means it's not necessary to draw a main character. There's no model building, no animation and no texture space wasted. More importantly, though, programmers don't have to worry about creating external camera angles, which is one of the most troublesome areas of thirdperson game development (just look at the mess Psygnosis made of *Rascal*).





The AI in *Doom* (top) wakes monsters to the incoming player, who they head straight towards. For *Unreal* (above), the beasts have at least learned to dive about their environments

industry buzzword, and if it is applied before phrases like 'lighting' and 'environment mapping', then the game is not worth the CD it's burned on.

Developers are acutely aware of this, but they're also aware that true 'realtime' effects are a near impossibility if decent framerates are to be maintained. The answer is to provide a close approximation of the goods.

Lighting is one area where this happens quite a lot. As Kavallierou reveals, "Realtime lighting is computationally expensive. You have to trace rays from the light sources, and calculate how much light is falling onto a particular surface (which will affect its brightness). This will also be affected by objects getting in the way, and if one of these objects has a reflective surface, you have to perform even more calculations." None of which is practical in a fast-moving game.

The alternative? "Well, it turns out that if you calculate the proper colours at each corner of the polygon (three or four calculations), then interpolate between these colours to calculate the colour of each pixel in-between [a process more familiarly known as Gourard shading], the results approximate what you'd get using proper ray-tracing. The 'advanced' lighting in *Forsaken* is just the programmers tinting the corners of each poly appropriately and letting the interpolation take care of the rest. It's actually very simple to do, but the effect looks great." Another marketing myth bites the dust.

Another current favourite effect which isn't quite what gamers are led to believe, is environment mapping. According to the rules, this involves accurately mapping a tinted copy of the environment onto the side of a reflective object such as a brass jug or car chassis. As the object moves, or the player moves around it, the reflection (or environment map) alters accordingly. Again, despite what certain marketing types may have gamers believe, this is far too complex to be performed in a game.

Programmers do use reflections, of course, but they don't quite employ the accuracy hinted at above.







Another line-up of the usual suspects: the cheating *Tomb Raider*, the lying *Forsaken* and the never truthful *Quake*

There are many more examples of this kind of optical illusion. Russell and Kavallierou cite another example in *Tomb Raider*: "Throughout the game, there are many blue Save crystals which look like they're reflecting the area Lara is in. But if you look closely, you'll see that the 'reflection' is just the same screen as you the player are viewing, but distorted and made blue. The camera faces Lara's back, so you should see her front in the reflection – instead you see her back,

> "The camera faces Lara's back, so **you should see her front in the reflection** – instead you see her back, because **they're just using the last screen image**" James Russell and Mike Kavallierou

Kavallierou again: "For reflections, it's usually the overall effect that's impressive rather than the detail. If you examine the mapping on *GT* for example, it's all cack, but since the focus isn't on that in the game, and it's all moving so fast, nobody notices. To the untrained eye, it looks great." In most racing games, the vehicles usually pass the same kind of scenery all the time, so the programmer simply has to grab a small chunk of this scenery and map it onto the car in a rotating sphere shape. In this way, the 'reflection' looks as though it is accurately portraying the roadside as the car moves.

because they're just using the last screen image. To create a 'true' reflection would be a big deal – you'd basically have to render the same scene twice for every frame and *Tomb Raider*'s engine is nowhere near fast enough to do that."

Water effects are just as visually impressive, but this is another area where cheating is common. **Jeff Stafford**, 'visual effects guru' at 8th Wonder, explains, "Water caustics (shadowy underwater lighting effects) are a classic example of what appears to be a very complex programming technique involving realtime calculation of

light rays, refracting through a water surface. In reality, all that is needed to fool the eye is simple random colours pulsing up and down along a sine wave. Sine waves can also be used to move the vertices of models underwater to produce a convincing effect of water distortion."

So, tricks are everywhere – you can't trust any of the breathtaking visual effects you see onscreen. The fabulous 'fade to battle' effect in *Final Fantasy VII*? All they're doing is adding the latest screen frame on top of the old one and rotating it a bit. The rippling puddles in *Metal Gear Solid*? Simply a graphic of a slowly expanding circle, which looks like a real ripple from a distance.

Getting away with it

So does all this conniving undermine the perceived brilliance of the game coder? Of course not. As **Oliver Norton** at 8th Wonder argues, "Coming up with ways to achieve stunning visual effects on the cheap is a skill in itself. The 'art' of generating innovative, computationally inexpensive methods for visual effects is a core skill in game development for both artists and programmers." **Mark Atkinson**, technical director at Computer Artworks, puts it another way: "The first thing to point out is that *all* videogame programming is about pulling the wool over people's eyes to a certain extent. You're not really an intergalactic superhero; and those aren't really devious alien fiends – they're some triangles and a motion algorithm. The trick is always creating as convincing an environment as possible within the limitations of the hardware and the development time available." Indeed, game programming is often a form of creative accountancy: the skill is to make it look as though the business (the hardware) is doing really well, when the true power is exerted by the little man behind the scenes with the calculator and a sleeve full of clever tricks.





Even with a 3D accelerator, games like Rage's *Incoming* require clever programming to look this good

AI: EXPLODING THE MYTH

Artificial Intelligence involves the construction of computer controlled entities capable of imitating real thought processes like deduction, hypothesis and conjecture. An artificially intelligent character learns from its environment and from its own actions, and is not directly controlled by lines of code. So, is this what happens in games which boast 'advanced AI'? The simple answer is no.

Most AI in games is actually rule-based – the opponents simply follow a series of rules triggered by events in the game. **Toby Simpson**, creative director at Cyberlife, explains:

"In a *Command & Conquer*-type game, the computer player's base-building system might have rules likes this:

```
Am I being attacked?
If 'Yes', go into attack mode
If no, continue
Do I have lots of money?
Yes. Am I playing defensive at the moment?
Defensive - go to 'Building' phase
Attack - go to attack phase
Am I earning enough? If not, and I have enough power, build a mine, etc.
If I don't have enough power, build a power station
```

Basically, this is just a huge tree of 'if this condition, do this' type commands."

So, then, the most advanced AI gamers is in games where the programmers have added the most rules. In *Doom*, the baddies simply stood around until they 'saw' the player; they would then run at him shooting until they were killed. In a modern firstperson shooter like *Unreal*, the baddies are given information about their surroundings, about their own health, and about the player, so they can appear intelligent. Now, when they see the player, they will still attack, but may run behind a box for cover, or run away altogether if their health falls too low. This is not intelligence – the models are just responding to 'triggers'; even when they get behind a box there is usually a preset route for them to follow.

It is possible, though, to fake the more in-depth fundamentals of AI. As Oliver Norton at 8th Wonder points out, "You can build a very simple simulation of the learning process with a surprisingly small amount of basic software. One very useful approach to beating a human player is to look for patterns in behaviour. The AI thinks 'Ah, the player often follows a high kick with a low punch, so I should perform a low block after each high kick'. Assessing the most successful strategies is also good. If the player blocks the computer's attack 90 per cent of the time, then it's probably time to try a different approach." Again, the computer isn't really learning, but it is adapting its techniques based on external stimuli, which is at least a step in the right direction.

However, the problem is that basing AI on sets of rules and preset paths can never be entirely effective, as the programmer can never think of every possible outcome. *C&C* is heralded as a classic, but **Mark Atkinson** has found its AI to be littered with weak points: "For instance, you could build a series of ore containers right into the enemy base, then build some missile towers on the end to hilarious effect. Or you could jam the computer's landing craft between two frigates in a 'V' and no more would appear for the rest of the game. Then there's the way the computer would send two attack helicopters against your Tesla coil, so you'd build four AA guns, and it would send two more helicopters which would be blown away this time. Then it would send two again in another five minutes, going for the same target in the same way every time, and every time being destroyed."

The thing is, developers tend to get away with substandard AI, because players can't see it in the same way as they can see lighting effects and animation. Furthermore, players believe what they want to believe. If a baddie suddenly stops running towards you and dives behind a bush, you don't know whether this was part of a complex AI procedure, or the result of a simple one line command to dive behind a bush. If you're enjoying the game, you may just go for the former. Unfortunately real AI (if that isn't a contradiction in terms) is so monumentally complex, it would be impossible to implement anyway.

Even if real ingame AI were possible, there are even questions as to whether it would be a good thing. As **Chris Hecker** at US codeshop Definition 6 opines, "The big secret of game development is that players think they want smarter AI, but they really don't. In fact, the industry is rife with anecdotes of smart AIs being torn out during playtesting because they weren't as much fun as dumb AIs (they were too unpredictable, or too hard, or whatever). What players really want, although they don't know to ask for it, is fun AIs. That's not the same thing as smart AIs." Perhaps he is right. After all, if Gary Kasperov can be beaten by an incredibly intelligent computer program, what chance do gamers have?







Artificial Intelligence is the biggest misnomer in marketing. *C&C* (left) and *Starcraft* (centre) pride themselves on fooling you. *Creatures 2* (right) is a bit more honest

WHAT DID SUPER MARIO 64 EVER DO FOR VIDEOGAMES?



Two years on and *Mario 64* remains unrivalled as a 3D platform game. Has he squashed the opposition?

It's probably an exaggeration to say that *Mario 64* is a *Space Invaders* for the '90s. Other titles, such as id Software's *Doom* and Westwood Studios' *Dune 2* have surely changed videogaming as significantly, and spawned as many imitators, as Miyamoto's classic.

And yet it's easy to find competent updates of *Doom* (*Quake*, *Unreal*) and *Dune 2* (*Red Alert*, *Total Annihilation*). Throughout the history of videogaming, titles that have opened up new avenues in gaming have been bettered by their descendants. Even titles that have not been obviously improved upon, such as Braben's *Elite*, are at least superseded by technologically superior models (Gremlin's *Hardwar*, for instance).

This isn't happening with *Super Mario 64*.

Croc was perhaps the earliest *Mario*-a like, although the comparison isn't wholly appropriate since Argonaut was creating *Croc* well before Miyamoto's character squeaked his first "It's me, Mario!". Yet *Croc* set the standard of subsequent 3D platform games – such as *Rascal* and *Gex 64*. And that standard wasn't especially high.

Many, including **Edge**, had pinned their hopes on Rare's *Banjo-Kazooie* to break the pattern. Certainly, *Banjo* is a splendid game, offering much adventure and technically superior graphics. But sadly, in **Edge**'s opinion, the over-enthusiastic welcome which *Banjo* received represents not waving, but drowning. It's not just that everyone is desperate for great games on the N64. It's that everyone's desperate for more *Mario 64*.

Edge has been criticised for its perceived hostility to Rare's *Banjo-Kazooie*. It's not cruelty to animals that lies behind the tempered enthusiasm, though. Rather, it's simply a case of understanding that despite some brilliantly realised elements, like the animal morphing and the use of sound, *Banjo* isn't 'better than *Mario*', despite the rabid claims.

Do you remember your first time? When you first pushed past the plumber's gurning 3D head into *Mario 64*'s gameworld? In retrospect, every previous *Mario* game looked like a postcard from this place – it was as if Mario had reached out and led you by the hand into totally new territory.

Sure, a game can only be first once. But it's becoming clear that *Mario 64* was special in a way that, say, *Mario World* wasn't. NCL's *Super Metroid* and *Yoshi's Island* were within shooting distance of *Mario*'s previous best, while a host of other titles could at least plant one on the plumber's 16bit chin. But the new dimensions that *Mario* appeared to have opened up now seem, to a pessimist with hindsight, to have closed doors.

According to those pessimists, like a Rubik's Cube compared to an anagram, designing a 3D platform game is a whole level harder than making one in 2D. Just like 3D graphics engines have ushered in a wave of P45s for graphic designers and programmers who plied their trade with sprites and raster ops, so 3D game design requires new ways of looking at platform games – if not altogether new talent.

Everything changes when a platform goes 3D. In a free-roaming game, where you're free to wander in four directions, just negotiating a ledge becomes a challenge. Designing challenging games becomes a nightmare.

Alternatively, could these be mere teething troubles? Will next year's 3D platform games make *Super Mario 64* look like what it surely is – a beachhead title that claims new land which its imitators must conquer for success?

Edge attempts to answer these questions, with the help of 3D game designers currently working on a slew of *Mario*-busters. If Shigeru Miyamoto threw out the rulebook when making *Mario 64*, these are the people trying to piece a new one together.

Wannabe #1



Spyro the Dragon
Format: PlayStation
Publisher: SCEA
Developer: Insomniac Games
Who would be king?
Spyro, a cute purple dragon
It's *this* close...
Players negotiate a 3D world collecting stars
But...
The emphasis is on interaction with characters, humour and on boosting the 'twitch' factor, with cinematic sequences for good measure. And hey, *Spyro the Dragon* is on the PlayStation

Wannabe #2



Glover
Format: Nintendo 64
Publisher: Hasbro
Developer: Interactive Studios
Who would be king?
A glove and a ball, as two equal partners
It's *this* close...
Players negotiate a cartoon-style *Mario*-esque environment
But...
It's more like *Marble Madness* meets *Head over Heels*. The glove looks a little like the cheeky plumber, but when playing as the ball *Glover* seems more like a puzzle game

Wannabe #3



Tonic Trouble
Format: PC/Nintendo 64
Publisher: Ubisoft
Developer: In-house
Who would be king?
Ed, an extra-terrestrial
It's *this* close...
Players negotiate a *Mario*-esque environment, enjoying racing sections and a snow world
But...
"In *Mario 64* the characters other than Mario are one-dimensional. In *Tonic Trouble* all of the characters react differently," says project manager Gregoire Gobbi

Wannabe #4



Crash Bandicoot 3
Format: PlayStation
Publisher: SCEA
Developer: Naughty Dog
Who would be king?
A bandicoot called Crash
It's *this* close...
For the first time, *Crash Bandicoot* has true free-roaming 3D sections
But...
They will be clearly separated from Crash's traditional two-and-a-half dimensional sprint. Plus, Crash will use vehicles such as a biplane, and the camera will be in chase mode, as in *Diddy Kong Racing*

THE TEN TENTATIVE COMMANDMENTS OF 3D PLATFORM GAME DESIGN

EDGE ATTEMPTS TO DIVINE THE NEW RULES OF PLATFORM GAMING

1. Thou shalt not have any other gods before *Mario*

Look at what *Super Mario 64* did, and learn

Super Mario 64 is *the* benchmark 3D platform game. More importantly, though, the game is a source of continual wonder. Perhaps the greatest lesson that *Mario* holds for developers isn't its camera angles or its level structure, but the way it wins hearts through sheer charm.



Super Mario 64

'It's a well known fact that few videogames can delight in the fashion as an example from Nintendo can, but no Nintendo game you've ever seen is nearly as delightful as this new 64bit breed,' **Edge** gushed in issue 35, 'the world of videogaming has just changed forever.'

And **Edge**'s panel of developers (see p81) largely agree: "It's hard to say anything critical about *Mario 64*, since almost every element of the game was done beautifully," says **Brian Hastings**, vice president of technology at Insomniac Games, and who works on *Spyro the Dragon*. But he stresses it's only a beginning. "*Mario* made some great strides in every area of 3D gaming, so we've taken notes and made what we think are significant improvements while creating a very different game."

Scot Steinberg of Crystal Dynamics (the creator of platformers like *Pandemonium* and *Gex*) echoes the sentiments. "*Mario* is like the primordial soup from which all life began," he says. "The unique combination of being a new, revolutionary game on a new revolutionary platform makes it a true phenomenon. *Mario 64* can be bettered but hardware technology, software technology and character design forces will need to be perfectly aligned to do it."

In this attempt to sketch out the ten tentative commandments, then, let this be the motto: Look first to *Mario*.

2. Thou shalt not make *only* graven images

Game design should be about the interaction, even if it's stripped of visuals

Banjo-Kazooie is perhaps *Mario 64*'s most beautiful cousin. The potent double-whammy of Rare's peerless artists and some improved N64 graphics libraries produced a game of stunning beauty. The most compelling reason to play *Banjo* is to marvel at what's around the corner.



Banjo-Kazooie

However, there remains a nagging suspicion that, at times, Rare lost sight of the wood for the lavishly realised trees. "The visual theme of each world, be it sand, swamp, ice or industrial, has limited the game's conundrums, not enhanced them," **Edge** noted in issue 61. "A reluctance to experiment with environments, allowing gravity to defeat imagination, runs like a stream through this game."

Creating a gorgeous world takes up so much energy, it's easy to forget that in the final analysis, gamers can see a better one outside the nearest window. Gaming is about gaming – graphics are a means to an end. "The game has to be enjoyable even if the main character is a flat blue cube," states Naughty Dog's **Jason Rubin**, creator of *Crash Bandicoot*. "Game design should be about the interaction, even if it's stripped of visuals."

UbiSoft's **Pauline Jacquey**, project manager for *Rayman 2*, agrees that players can have too much time to admire the view – a leisurely tendency which, in *Mario 64*, sees the hero fall asleep if left to his own devices. "Speed and intensity are at the root of *Rayman 2*. This makes it really different from all the other 3D games where there is nothing to do except admire the scenery. In *Rayman 2* the player hasn't got a second to waste as everything keeps collapsing behind him, and he is either riding a strange animal or is pressed for time, has a lack of oxygen or encounters strong winds."

Visuals are an important part of a 3D platform game. But there is more room for innovation in gameplay and level design than in rendering yet another ice world.

Wannabe #5



Earthworm Jim 3D

Format: PC/Nintendo 64/PlayStation
Publisher: Interplay
Developer: VIS Interactive

Who would be king?
Dave Perry's *Earthworm Jim*

It's *this* close…
Like *Mario* and *Rayman 2*, a veteran character reveals hidden depths

But…
It'll be funnier than *Mario* ever was, with the comic book look of the original games translated into 3D. And instead of ice and water, players navigate through Jim's brain

Wannabe #6



Croc 2

Format: PlayStation/PC
Publisher: Fox Interactive
Developer: Argonaut

Who would be king?
Croc, a cutesome crocodile

It's *this* close…
A charming 3D character collects crystals that open up new levels

But…
With luck, Croc 2 will offer a wrinkle-free update of the original, as it enjoys a huge fan base despite mixed reviews. Argonaut claims it had ideas "two years before *Mario* came out"

3. Thou shalt not take on *Mario* in vain

If you're going to make a 3D platform game, go for the throat

"I'm convinced that it's possible to make games that are as good as – if not better than – *Mario*," says UbiSoft's Pauline Jacquey. "Not necessarily from a technical point of view, but in terms of intensity, pacing and variety of gameplay."

It's a sentiment echoed by Argonaut's **Tony Lloyd**, who points out that Argonaut began work on *Croc* six months before *Mario* went public. Now working on *Croc 2*, he asserts: "If they'd thought of every single thing that it's possible to squeeze out of 3D platformers, we'd pack up and do something else. I'm positive that 3D platformers are still in their infancy."

Insomniac's Brian Hastings focuses on two weak points. "Some of the areas were very hard, and they had very little interaction with enemies," he says. *Spyro the Dragon* will offer a different emphasis. "We're putting the focus on fighting enemies. By putting more enemies in the game, we were able to add a lot of humour and showcase some great animation, but also pick up the pace of the game. *Spyro* has a much higher twitch factor than *Mario*."

Admiration for Miyamoto's title can teach many things, but, like the great western gunfighters, **Edge** is certain some young gun is waiting for high noon to finish him off. What lesser artists copy, great artists kill.



Spyro the Dragon

Wannabe #7



Space Circus

Format: PC/Nintendo 64

Publisher: Infogrames

Developer: In-house

Who would be king?

Starshot, an intergalactic juggler

It's this close...

A planet-hopping platformer for the Nintendo 64

But...

Space Circus focuses on projectile missile combat rather than the pixel-to-pixel punch ups of *Mario 64*. Starshot is flanked by two robotic sidekicks, who crack jokes and offer hints

Wannabe #8



Rayman 2

Format: PC/Dreamcast/Nintendo 64

Publisher: Ubisoft

Developer: In-house

Who would be king?

The original Rayman

It's *this* close...

Former one-pixel-thin Rayman now explores a free-roaming 3D world

But...

Rayman 2 promises to be a much speedier game. There are also more characters, and more of the hero's weapon (which acts as a grapnel, a lasso and a means of transport)

Wannabe #9



Twelve Tales: Conker 64

Format: Nintendo 64

Publisher: Rareware

Developer: Rare

Who would be king?

A stomach-churningly cute squirrel

It's *this* close...

Not so much a *Mario* clone as a *Mario* clone clone

But...

More interactive cartoon than platform game, all the characters display a range of emotions and facial expressions, and it includes two different heroes plus two and fourplayer deathmatch modes

4. Remember the day of rest

People play games for fun. Entertain us

Take any opportunity to delight the gamer. The myriad little touches in *Mario 64* – the shell-riding, the magic mirror, the cannon travel, a pyramid whose point can be popped off, the seemingly never-ending challenges nesting like Russian dolls – are surely its most endearing traits.

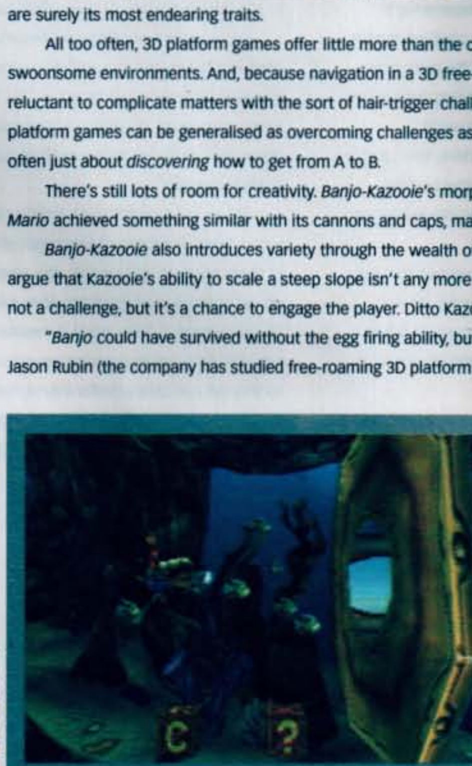
All too often, 3D platform games offer little more than the chance to steer a character through some hopefully swoonsome environments. And, because navigation in a 3D free-roaming world is a pretty difficult task, designers seem reluctant to complicate matters with the sort of hair-trigger challenges favoured in 2D games. If the previous generation of platform games can be generalised as overcoming challenges as they emerge from left to right, 3D platform games are too often just about *discovering* how to get from A to B.

There's still lots of room for creativity. *Banjo-Kazooie*'s morphing characters introduce a lot of variety into the navigation. *Mario* achieved something similar with its cannons and caps, making sure each journey was an event in itself.

Banjo-Kazooie also introduces variety through the wealth of different skill sets that gamers can call upon. You might argue that Kazooie's ability to scale a steep slope isn't any more interesting then if Banjo could walk up by himself. True, it's not a challenge, but it's a chance to engage the player. Ditto Kazooie's ability to fire egg projectiles.

"*Banjo* could have survived without the egg firing ability, but it makes the game more interesting," says Naughty Dog's Jason Rubin (the company has studied free-roaming 3D platform gaming hard, while opting so far for a so-called 'two-and-a-half-D' perspective).

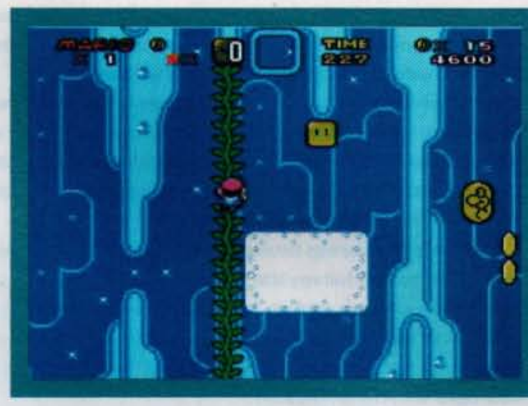
"It may seem token, but it serves to make the game more enjoyable," he says. "In *Crash Bandicoot 3*, Crash can fire a bazooka, do a super bellyflop, fly a biplane, ride a baby T-Rex and more. We learned from the first *Crash*, which had a simple, operational set of moves that included only Run, Jump and Spin, that players wanted more from the character."



Crash Bandicoot 3

5. Honour thy father and thy mother

Remember 2D games? They were good enough for 15 years...


Super Mario World

The rush of mediocre 3D platform games has revealed what made 2D games so exciting – specifically speed, simplicity and precision.

In contrast, just moving in 3D can be difficult enough. "As far as Naughty Dog is concerned, there has yet to be a 'free-roaming' game with the tightness of control found in even the worst section of a *Mario* 16bit title," says Jason Rubin.

The problem lies in the relationship between the controller and the camera. "In 2D, the camera is fixed, so the controls are fixed – left is always left. That's the secret to *Crash*'s solidity of gameplay," remarks Rubin. In contrast, in a 3D free-roaming game, control changes just because the camera is moving. "The best example of this can be found just after entering the front door of the castle in *Mario 64*. The camera faces Mario, who has just come through the door. The player pulls the analogue stick 'down', which makes Mario run towards the camera. As he passes the camera, the player must slowly rotate the stick to 'up' to keep running towards the interior of the castle. It is almost impossible to keep him running in a straight line."

Rubin contends that the complexity of simply walking in a straight line makes most 2D gameplay challenges, such as a simple platform jump, impossible at this moment in the game. "To varying extents, all *Mario*'s gameplay suffers from this problem," he says. The move to 3D, which might seem purely graphical, actually destroys the previous bedrock of platform gaming.

Toby Gard, who at Core Design helped create that other legendary 3D character, Lara Croft, repeats Rubin's concerns. "Controlling a character in 3D is always going to be harder. Your interface with the computer is 2D – your main movement is governed almost exclusively by Up, Down, Left and Right. This translates far better to the flat plane of your TV than the mental jiggery-pokery necessary to translate joystick movements through a control system into 3D space."

Developers should remember what they're losing before embarking on their projects. It can be more than meets the eye.

6. Thou shalt not kill the character

The best games have a lot of personality


Gex 3D

Despite being 2D, *Abe's Oddysee* boasts as much depth as nearly all 3D platform games. The secret, according to Oddworld president **Lorne Lanning**, lies in its characterisation.

"Platform games are just a vehicle to make a movie and story experience in gameplay," she says. "The platform format allows the developer and the gameplayer to focus on character. Bringing them to life, giving them more brains – this is what's going to suck in the rest of the world."

Nintendo has forgotten more than it knows about creating characters. The rotating Mario face at the start of *Super Mario 64* sets the agenda. Dozens of other touches, from the way Mario rubs his head when he hits a wall, right down to his idle animation strengthens players feelings.

Character creation is a black art. While anyone could have told Psygnosis that the child star of *Rascal* would quickly reduce players to the wrong kind of tears, it's not always so obvious. "In terms of personality, Crash is not what marketing would sell as a 'cool dude'," explains Naughty Dog's Jason Rubin. "Crash is not the brightest, and he is not always in control, but he is loveable."

Character design can't be skimped on, according to Rubin. "Many characters opt for simplicity to save polygons," he says. Even worse, "some characters out there are simply created by slapping a new colour scheme on an existing character, an animal or fantasy creature and giving it a cute name."

With *Pandemonium* and *Gex 3D*, Crystal Dynamics has experience of creating both 2D and 3D characters. "At the core of any good 3D experience is a character that feels like it belongs there," says Crystal Dynamics' Scot Steinberg. "If the mechanics were not built for 3D gameplay, or do not exploit the strengths of 3D, then the project will fail."

Confounding Factor's Toby Gard has a rather different philosophy, which led to the birth of Lara Croft. "I try to make sure that all the main characters in our games are sexy, whether they are male or female. You should look at them and feel jealous."

7. Thou shalt not commit adultery

Don't screw around with what works

A platform game should *be* a platform game. Whenever **Edge** is told that a 3D *Tomb Raider*-style action game is actually an adventure, alarm bells begin to ring. The same might soon hold true for platform games.

Toby Gard defines 2D platform games as a combination of agility-based timing puzzles, secrets, traps, pickups, an intuitive control system and enemies. All can be retained in 3D platform games, or "Everything but the high score and sideways scrolling," he says.

Move away from these challenges and you're moving into new territory. Great in itself, but remember that a platform game without platforms better have something to replace them. Pauline Jacquey: "The major shortcoming of 3D is that if the world is too open, it leads to a slack game where, even if immersion is successful, the player isn't really too sure what he's supposed to be doing because the action plods along too slowly."

When creating *Mario 64*, the first thing decided upon was the height of Mario in the world. From this followed the length of his jump, the speed he could move and the scale of the scenery. In other words, this revolutionary game was actually built from the bottom up, according to solid platform-style rules. *Crash Bandicoot*, a game closer to the 2D ethic, is equally explicit. "The world is measured in Crash units," explains Jason Rubin. "Crash is one unit wide and deep, and two units tall. This allows us to simplify spatial relationships so that we can create better interaction between the character and the environment."

Insomniac's **Matt Whiting** says similar rules lie behind *Spyro the Dragon*. "There are hosts of examples of how the game was built to exacting scientific standards," he says. "It is important that each element be just right, but if all the elements can be put together properly, the whole really can be greater than the sum."


Tomb Raider

8. Thou shalt not bear false witness

Everyone hates the camera in *Mario 64*. Everyone agrees it's the best

Before *Mario 64* and *Tomb Raider*, no one really cared about 3D cameras. Firstperson games needed only to show the player's point of view. Sports games had the slightly harder task of showing the action from an external perspective, but since the average sports pitch is free of mountains, corridors, and other sundry bric-a-brac, the task was pretty simple.


Rayman

In contrast, a 3D platform game needs a camera which can alter its view continually, to compensate for the changing action. As Mario runs down tunnels or slides around mountains, the camera tracks his changing position to stop him disappearing. While many criticised the camera, Miyamoto and co were so impressed with their achievement, they actually made Lakitu the cameraman a star.

Common complaints of lesser cameras are that they fail to show the character on screen, that they make it impossible for players to judge angles and distance, and that the camera roams around more than is necessary. But there are a host of other, less obvious problems with 3D cameras.

"Besides *Crash*, which is 3D, but not free-roaming, I still prefer the *Mario 64* camera to the 'over-tuned' feeling of the *Banjo* camera and some of the other newer games," says Jason Rubin. "All of the Naughty Dogs could finish *Mario 64* but some complained of feeling 'sick' from the sudden camera movement in *Banjo*. I can't explain it because it didn't happen to me."

Another bone of contention is letting players tweak the camera. *Mario 64* would have been impossible if you couldn't sometimes control the camera yourself. While some feel this is disruptive, others believe it adds extra immersion. According to Insomniac's Matt Whiting: "There are camera controls in *Spyro*, but I'd be happier if players never feel the need to use them. On the other hand, the ability to look around in pseudo-firstperson actually enhances the suspension of disbelief."

Can the camera also be used more creatively? Pauline Jacquey hopes *Rayman 2*'s camera will actually be a positive selling point. "One of the challenges was to make a 'director's cut' type of game. There are very many different cameras that are used in a very studied way," she says, with the result being more cinematic than previous titles.

A final issue is that camera design can influence level design. But, for *Rayman 2* at least, "the artists who created the levels graphically were careful not to construct scenes so tightly that the camera couldn't move about," says Jacquey. "In reality it wasn't really a major constraint because the game designers can always switch to the standard game camera: either a fixed high-angle side view or a low-angle shot. The work is almost comparable to directing a film – except it's interactive too!"

Camera design is fundamental to 3D platform design. Nobody has got it wholly right yet.

9. Thou shalt not steal, stupidly

Do you even need to make a *Mario* clone?

Perhaps 3D, free-roaming games shouldn't be made at all...

For *Abe's Oddysee*, Oddworld created a deeply unfashionable – yet successful – 2D game. Why? "It was largely due to the power of the PlayStation," says Lorne Lanning. "We thought fun, gameplay and creativity was more important than the latest trick in technology. We see that everything we create is going to translate into 3D once the power to deliver the same quality art, animation and AI is available, but 2D lets us get the ball rolling."


Abe's Oddysee

If you want a fast, frantic game, it's easier to get it right in 2D. With *Pandemonium*, for instance, Crystal Dynamics had no doubts. "From the outset, Crystal Dynamics wanted a fast-paced product that concentrated on the endorphin driven responses, with less of a concentration on exploration," confirms Scot Steinberg.

Yet even Steinberg admits that Crystal Dynamics would be hard-pressed to do another 2D title. "The worldwide marketplace has evolved towards the more impressive qualities of 3D space. To some extent, the industry magazines have helped usher the end of 2D products by terming 3D to be the cutting edge. Shaping consumer perceptions that 2D is less sophisticated has effectively limited their commercial appeal."

Still, if a developer is prepared to make a 2D game with 3D trappings, there might still be a market, argues Jason Rubin. "*Crash 1* and *2* have sold more units worldwide than every free-roaming platform game but *Mario 64*," he says. "Its sales approaches the 2D greats of the 16bit age. The demand is still there."

10. Thou shalt not covet thy neighbour's house...

Thou shalt not covet thy neighbour's wife, nor manservant, nor maidservant, ox, ass, nor anything that is thy neighbour's

Goes without saying, really.

The Three Golden Rules of 3D Platform Game Design

The inspiration for Edge's own ten commandments

	Brian Hastings, VP of technology, Insomniac Games	Pauline Jacquey, product manager, UbiSoft	Toby Gard, founder, Confounding Factor	Tony Lloyd, lead programmer, Argonaut Software	Jason Rubin, president, Naughty Dog	Darren Wood, team leader, Interactive Studios
Game	Spyro the Dragon	Rayman 2	Tomb Raider	Croc 2	Crash Bandicoot	Glover
1	Keep the action in front of the camera	Give the hero as many actions as possible	Playability	Give the player control	Gameplay	Make it original
2	The terrain determines the gameplay	Give the player clear objectives	Utilise your system thoroughly	Get the camera right	Gameplay	Make it fun
3	Keep the theme of the level simple and focused	Pacing, pacing, pacing	Don't make it hard	Remember the 'wow' factor	Test the hell out of it (you probably got the first two wrong)	Make it polished

TESTSCREEN

The definitive monthly assessment of the world's latest videogames

All change...

And so the time has almost come for the games market to play musical chairs again. With Sega about to be reborn with Dreamcast and PC developers continuing their demented chase for ever-more-realistic visuals, only Sony and Nintendo remain quiet regarding future console plans. But the end of the PlayStation's creative life may be closer than many players realise. Having talked to several leading developers, **Edge** can confirm that some of them are currently working on or have just completed their final PlayStation 1 projects and are now looking to the future (whatever shape that future takes, be it PlayStation 2, Dreamcast or whatever).

Given the current state of the market, it might be commercial suicide for Sony to announce a new console when its 32bit platform is still selling healthily all over the world. Furthermore, anyone buying a PlayStation today can hardly be termed a hardcore gamer and therefore likely to be under the impression of having purchased a future-proofed product, totally unaware of the rapidity at which this market moves. Conversely, it would be logical for Sony to make some sort of major announcement nearer Dreamcast's launch, if only to steal the limelight from Sega's promising 128bit platform.

Nintendo is also keeping silent, but, as ever, the Kyoto-based giant has a card up its sleeve, and those quick to criticise the N64's storage medium may well be eating their words soon. As indicated by Rare's Chris Stamper before Christmas, the cartridge-based nature of the N64 means the machine is continually expanding its capabilities as larger cartridges enter the market. The first indication of this can be seen over the page. *Turok 2* is the first N64 game to make use of the new N64 RAM pack (see News, p8) to enhance the game's visuals, making it possible for Turok to negotiate 480x360-res areas. Suddenly, in visual terms at least, the PlayStation is another leap behind. While Sony is stuck with fairly static technology, relying on developers to come up with ever-more-efficient compression routines and programming tricks, the N64 community can look to new hardware add-on solutions.

Of course, it would be wrong to dismiss Sony's dominance of the videogaming world at this point. This, after all, is a company that came from pretty much nowhere to loom large over a furiously competitive market in a staggeringly short amount of time. And with *Metal Gear Solid* and *Gran Turismo 2* on the way, its 32bit box is unlikely to join the Jaguar and 3DO at local car boot sales for a fair while yet.

Index





Other than *Metal Gear Solid* (left) and possibly *Gran Turismo 2*, the PlayStation's coming line-up is rapidly losing momentum while the N64 still has *Zelda* (centre), *Perfect Dark* (right), *Mario 64 2*...

Videogames on the Edge

This month **Edge** has been *especially* busy playing...



Super Mario World (Nintendo)
This month's 3D platformers feature brought the plumber's first 16bit title out of the archives. And it passes the test of time in extraordinary style.



Colin McRae Rally (Codemasters)
Since the announcement of Codemasters' Colin McRae Website and its hall of fame (see Out There), this title has taken on a new lease of life.



Wonder Boy III (HudsonSoft)
Originally having played it on the Sega Master System, **Edge** was pleased to track down the PCE version of this clever, super-cute platform adventure.



GoldenEye (Nintendo)
Another appearance for Bond. **Edge** would play something else, but the cart now appears to be welded into the office N64's cartridge port.

TUROK 2: SEEDS OF EVIL







The immediate graphical leap over its predecessor comes as a result of the N64's imminent add-on RAM pack, which increases resolution to 480x360





Blast any of the many bipeds littering the levels (a good idea given their sharp claws) and copious amounts of red jam issues from the open wounds

In the well-documented story of Acclaim's fall and rise, it's fair to say that one title marked the beginning of a new, more positive chapter. Developed by a dedicated team of visionaries at Acclaim's Iguana US studio, last year's *Turok: Dinosaur Hunter* hammered home the message that things really were changing within the beleaguered company.

It also proved to the world that Nintendo wasn't the sole master of its then sparkling-new technology (although all too often it seems otherwise). In addition, *Turok* underlined the lack of imagination expended in the creation of contemporary firstperson shoot 'em ups for the PC. The deserved wave of adulation that surrounded Rare's *GoldenEye* almost drowned all of *Turok*'s achievements, but in truth the two games had very different agendas. Where Bond brought tight structure to the firstperson genre, Iguana's title was all about its



Unlike *GoldenEye*'s calculated approach, Iguana's firstperson shoot 'em up is all-out action demanding quick reflexes and nerves of titanium

detailed and atmospheric environments – and its seriously OTT weaponry.

Rather logically setting forth from where *Turok: Dinosaur Hunter* ended, the sequel's plot features a new foe, the Primagen, unleashed by the destruction of the Chronosceptre in the original game. Now assisted by new (female) sidekick Adon, the heavily armed hero must battle through six levels, finally confronting the Primagen in its base.

Iguana has seemingly jettisoned any desire to recreate the jungle world of the original game, instead creating a series of notably varied locations.

The most striking thing about playing *Turok 2* is the vast improvement made to the game's 3D engine. After wading through the swathes of fog that were wrapped around the original's scenery (purely to hide the intrusion of pop-up), it's surprising to be confronted by the









Incidental detail has also increased since Iguana's last firstperson shooter



Level size is vastly expanded over the original game. Players will soon find themselves wandering through increasingly complex and demanding scenery

Format: **N64**	
Publisher: **Acclaim**	
Developer: **Iguana US**	
Price: **$50 (£35)**	
Release: **October**	





Ambient effects – visual and aural – are used throughout the game to create a moody and absorbing atmosphere. The fast-paced music is somehow out of place

open layout of *Turok 2*'s first level. Set in a bombarded port, play commences with cannon fire landing all around and fires still blazing. As before, *Turok*'s calling card is its atmosphere and sense of occasion, the feeling that there are unseen events occurring in a greater world. Later levels confirm the suspicion that its six stages contain far more variety of both visual style and enemy type than comparable PC titles of relatively limitless storage facility cannot match. From sombre swamps and ruined cities to neon-lit alien bases, *Seeds of Evil*'s artistic range is remarkable. However, the ambitious nature of certain areas leads to inevitable slow-down, particularly when more than one attacker is being drawn.

Aside from the commitment of its team to create a significantly expanded sequel, Iguana has been able to create such a varied set of locales through one key addition: beating *Zelda: Ocarina of Time* to the shelves by a narrow margin, *Turok 2* has become the first game to utilise a 32Mb cartridge (its forebear occupied only 8Mb), and is also leading the way by running at a crisp 480x360 resolution via the forthcoming N64 RAM pack (see news).

Aiming high

Clearly, Nintendo is keen to raise the profile of its machine among 'serious' gamers, and Iguana's sequel is an ideal vehicle for such incursions. A large amount of the cart has also been given to the spoken narrative that Adon delivers as the game's plot unfurls. Completing levels now takes longer, sometimes leaving you wondering whether an end will ever be reached. A new emphasis on sub-missions is apparent, with the player having to save various captured humans (including some sickeningly cute children – and no, they can't be shot). Other tasks include obtaining satchel charges and then using them to detonate well-hidden ammo dumps, while another involves riding a heavily armed dinosaur through a series of obstacles.

As in *Quake II* and *Unreal*, a great amount of attention to detail has been paid in laying out *Seeds of Evil*'s many stages. With increasing complexity, corridors and chambers are wound around one another, which occasionally proves confusing. Players looking for the tight missions of *GoldenEye* will be disappointed; *Turok 2* is more like



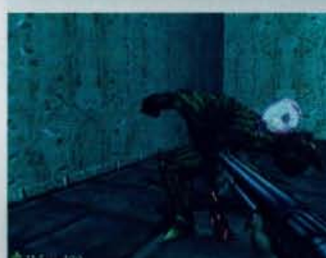
Death is never a pretty sight but if a choice must be made between a hideous insectoid monster or the game's heroic character, well...








Choose death. Choose pistols, choose bows, a brace of knives, a missile launcher, and flame thrower. Choose a cerebral bore and a razor-edged boomerang – *Turok 2* has it all


The variety between the many different insect-like biped opponents is commendable, particularly when you consider the intricate level of detail displayed by each repulsive creature. While many hold no weapons other than flesh-ripping claws, a few have brought artillery along with them

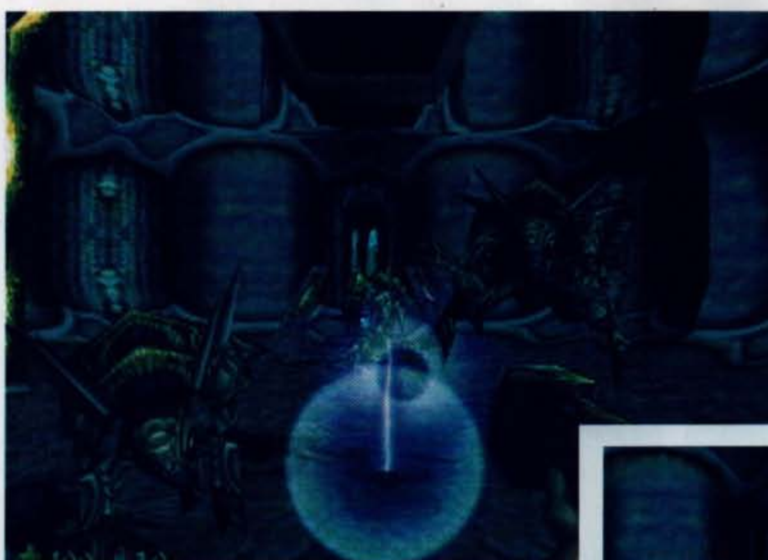
Quake II in this respect. That's not necessarily a bad thing, more a case of different approaches – Rare has its own agenda that is doubtless to reach new heights in *Perfect Dark*. For the *Turok* franchise, to chase after the *GoldenEye* model could have easily lead to a mish-mash of game styles. Additionally, significant advances have been made in enemy AI, a feature that *GoldenEye* was lauded for, but against Iguana's reptilian and insectoid foes, now seems simple. While basic enemies will dodge and flee when attacked, others can take refuge behind objects. In one near-comic case, a creature crouches behind a box, only popping up to throw explosives towards the player. But trying to flank around it merely results in it circling around to the other side, leaving no option but to try and pick it off when it breaks cover – much as you might against a human foe. Tied to a detailed set of character animations, the AI creates enemies which put *Unreal*'s skittish, poorly realised adversaries to shame.

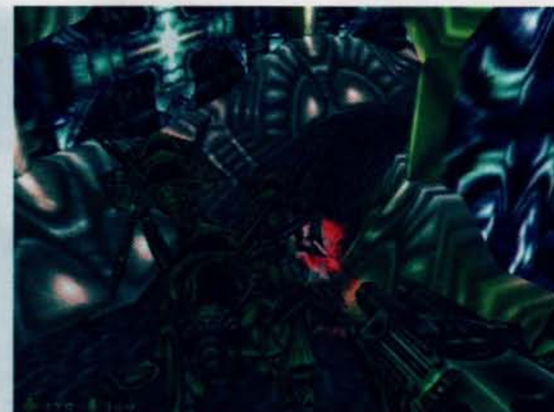
Ultra violence

Inevitably, certain aspects of *GoldenEye* have been absorbed by Iguana, with Turok's revamped armoury boasting two sniper weapons. Coupled with the new 3D engine, this brings a new pace to the game, with the player able to pick off distant targets with either the Tek arrows from the original game, or the pulse rifle. However, where Bond became fixed to the spot whenever the sniper mode was enabled, Turok retains total freedom of movement – aside from being temporarily unable to jump. Other weapons retain the cinematic blockbuster ideology that permeated the original game, although more selections can be applied to close combat than before. A new paradigm in questionable violence is set by the cerebral bore which fires a drill-like dart into enemies' skulls, resulting in showers of red and grey matter pluming from their heads. In addition, it's now possible to dismember foes, either through judicious aiming of



The animation of the various creatures is remarkable and serves to heighten the ingame tension and realism already abundantly present





The Rumble Pak is supported to great effect. One weapon even builds up vibration as it rotates faster and faster





As well as improved animation, enemy AI is now impressively advanced, which makes killing them a little harder, naturally

heavier weaponry or by utilising the knife-edged boomerang weapon 'razor wind'. Also of note is the inspired flamethrower, which has easily the best graphic realisation of such equipment yet seen in a videogame.

Join the party

Players keen to sample *Turok 2*'s multiplayer modes will not be disappointed, with a dozen bespoke levels to choose from and four players supported. Those spurious *GoldenEye* critics who found that the inability to drop from ledges detracted from the game will be pleased to note that *Seeds of Evil* has no such restrictions. It's also possible for characters to swim, as in the oneplayer mode. Iguana's level designers have used the powerful dynamic lighting routines at their disposal to help guide participants around the large arenas, through colouring certain sections.

While a significant advance over its predecessor, this sequel isn't without faults. As with most games in the firstperson genre, extended stints of the oneplayer game can prove strangely numbing due to the repetition of successive exploration and combat. However, the various sub-missions and the variety of environments do much to alleviate this. In addition, the later stages of the game are remarkably hard to complete, a result of the aggressive enemy AI and fiendish level design. The moments of 'calm before the storm' which are found in earlier sections of the game are somehow missing from later stages, which reduces the impact of major events. And while *Gran Turismo* has revealed just how subjective the reaction to music in games can be, **Edge** would have preferred a more sinister, brooding soundtrack than the fast-paced orchestrals featured here.

Overall, *Turok 2* is a detailed and well-integrated title – not to mention an extremely enjoyable one. The technical, AI and design advances made since the release of the original game are more than enough to elicit a favourable response. And, as with *GoldenEye*, there's a realistic sense of pace that is missing from all too many contemporary, firstperson PC shooters – a factor which players of those games don't seem to appreciate. Their loss.

Edge rating:

Nine out of ten



Unlike its predecessor, Turok no longer fights human adversaries

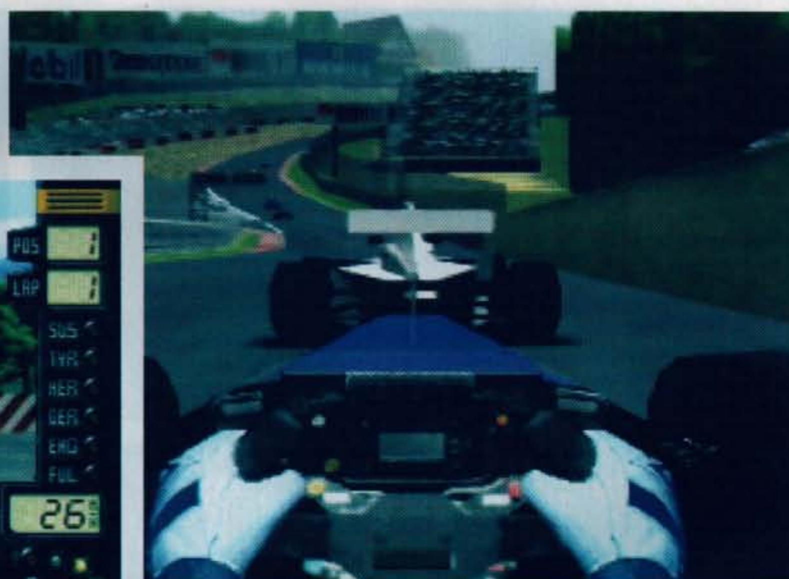


The *GoldenEye*-inspired sniper mode can be used with either Tek arrows (as in *Turok*) or the pulse rifle, which adds a different pace to the overall proceedings

F-1 WORLD GRAND PRIX







The drawing distance is impressive given the level of detail present in the backgrounds (above). While the music is poor, engine noise is authentic





Replays suffer major framerate drop. Never underestimate Michael Schumacher's ability to reach the finish line despite crippling mechanical faults (above)

By now every N64 owner must have given up on the prospect of ever being able to relish a serious racing experience approaching the quality of those enjoyed by their PlayStation cousins. But, after a surprise appearance at this year's E3, Paradigm's Formula One extravaganza gets closer than any of its predecessors, having thankfully retained all of the potential it displayed at the annual interactive entertainment expo.

F-1 World Grand Prix is all about detail. From elaborate car setups to clean racing lines and crucial pit strategy, all aspects of Formula One racing have been incorporated. It may not boast the most up-to-date statistics (it has last year's season regulations, car liveries, and team and driver partnerships) or a revolutionary physics model, but Paradigm's effort emerges as one of the most playable of its genre.

It isn't the easiest, though. Even in its lowest difficulty setting, *F-1* is particularly uncompromising, and if you subscribe to the 'driving without braking' school of videogame racing you'll find yourself in the gravel traps and grass more often than on the smooth, speed-friendly black stuff. But venturing off the tarmac will at least enable you to admire such details as glowing discs following a tentative but desperate, tardy braking attempt, and the way dirt clings to tyres as you make your way back on to the track. If the damage and pitting options are on (and depending on the force of the impact) then you can also watch out for broken suspension arms, blistered tyres, flying spoilers or even ripped wheels.

Visually, there's little to criticise. The cars are realistically modelled and the tracks authentic. The detail with which Monaco has been polygonally reproduced, for example, is remarkable. The background too is impressive, in the way it offers the illusion of a 3D make-up, even though technology dictates that this



A perfect English summer's day. Like all good racing games, *F-1* features dynamic weather that plays havoc with carefully planned pit strategy









The almost 3D-like effect of Monaco's hillside is impressive (above). Interestingly, double-tapping the accelerator button is equivalent to flooring the pedal while activating an anti-lock mechanism when used on the brakes

Format:	**Nintendo 64**
Publisher:	**Video System**
Developer:	**Paradigm Ent.**
Price:	**$60** (£46)
Release:	**Out now (US)**

cannot be so. Unfortunately, while the graphical quality is commendable, the frame rate is disappointing, and while it doesn't detract from the game's playability a smoother update would have been preferable.

A notable addition to the usual exhibition, time trial, twoplayer and championship options is the challenge mode, which takes certain nominal events from the 1997 season and places you in the role of a specific driver with the task of re-enacting the particular episode over a determined number of laps. This may involve staying out on worn tyres in an attempt to gain a maximum amount of positions while others pit in, or defending a point-scoring placing with drastically failing brakes in the last few laps of the race, for example.

Yet *F-1 World Grand Prix's* strength lies in its precise handling characteristics and the overall realism it skilfully conveys. The cockpit view is perhaps the best illustration of this, as the car vibrates violently as it reacts to bumps around the circuit, requiring a very gentle steering approach to tame the 700bhp being delivered to the rear wheels. Arcade racing fans will no doubt be throwing their joypads against the nearest wall mere minutes after slotting in the cart and powering up their 64bit machine. However, although still faced with a formidable challenge (certainly in champion mode), F1 aficionados and those able to appreciate elaborate car physics should have a far more enjoyable time.



While catching and getting past the opposition is not a particularly easy task, the fact that he may run wide or spin remains a satisfying possibility

Edge rating:

Eight out of ten





The cockpit view is particularly realistic in the way it delivers a severely bumpy ride, further enhanced by the game's good use of Rumble Pak support

BUCK BUMBLE

Format: **Nintendo 64**

Publisher: **UbiSoft**

Developer: **Argonaut**

Price: **£50**

Release: **October**









As Argonaut's first N64 release, *Buck Bumble* is a deeply disappointing title, which hardly pushes the 64bit machine's power. Level design is poor and a weak graphic engine ensures a large amount of fogging is required







Sadly, the missions have a tendency to be simple search-and-destroy affairs, with very few of them displaying the complexity associated with quality products

Jez San's tenure as one of Nintendo's favoured codeshop-owning creatives saw Argonaut hit an inspired high during the Super Nintendo's mainstream tenure. It's disappointing, then, that *Buck Bumble* marks an uninspiring, eminently *mediocre* N64 debut for the company.

With full 360° movement and mission-based levels, *Buck Bumble* is a far cry from the focused on-rails *Star Fox*. To make a direct comparison between the two titles may be unfair and inappropriate, but reveals an inherent truth. *Star Fox*, as primarily technology-led software, pushed the SNES to its limits (and beyond, with Argonaut's Super FX chip). *Buck Bumble* barely skims the surface of the N64's capabilities.

Bumble's engine appears ill-suited to its 'garden' areas, where its eponymous hero fights a war against his mutant insectoid foes. Smaller, compact locations see its repetitive surface textures shift at an adequate pace, but the moment Buck meets a number of assailants in an open area, a reduction in framerate follows. Similarly, its reliance on large-scale fogging effects, further suggests the code in use would be better suited to focused, corridor-heavy level design.

With its missions lacking complexity (they are, with few exceptions, simple search-and-destroy sorties), *Buck Bumble* desperately needs the kind of touch that typifies most Nintendo or Rare releases. The addition of involved set-pieces – say, for example, a high speed chase or race where players could demonstrate their Buck-handling abilities – could offer some respite from the oft-repetitive insect blasting.

Most unforgivably, *Buck Bumble* adheres to the age-old design premise that, should a player die, they're subsequently returned to the beginning of the level in question. After 20 minutes of careful, patient play, to be returned to square one after a simple mistake – such as crashing Buck into a deadly water pool – is hellishly infuriating. A better game – *Star Fox* for example – can use such a harsh system because the quality of its levels is so high. In short, the player will invariably not mind playing again. A game must *earn* the right to demand patience from its players in the '90s – and *Buck Bumble*, the 'average game' poster child, arguably does not.

Yet, despite its poor aesthetics, oft-jerky screen update and weak attempts at the mysteriously developer-defying concept that is 'characterisation', *Buck Bumble* isn't the disaster it initially appears. Later levels offer a higher degree of challenge, and its twoplayer mode, though hardly envelope-pushing, is surprisingly entertaining.

A genuinely average release.

Edge rating:

Five out of ten





One false move and it's a frustrating trip back to the start of the level

NINJA: SHADOW OF DARKNESS







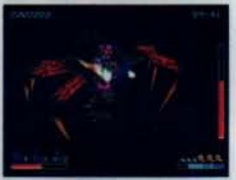




Ninja displays its arcade inspiration with pride but sadly, in its transition to the currently 3D-mad development world, an extra dimension has spoilt what may have been a union between classic 2D gameplay and '90s visuals

Format: **PlayStation**	
Publisher: **Eidos**	
Developer: **Core Design**	
Price: **£45**	
Release: **Out now**	









The shop (top) at the end of each level allows players to stock up on potions, power-ups and weapons that prove useful against the game's bosses

There are occasions when the argument for a three-dimensional approach to an old videogaming concept makes sense. And then there is *Ninja*.

As the eponymous assassin, players must use their Ninjitsu skills through 14 levels inhabited by both human and mystical creatures, before encountering a huge boss barring passage to the next stage. Money (used in shops between levels), magic potions and weapons (which can be powered-up by collecting scrolls) can be found along the way, although occasionally a trap rather than a reward may be found by Ninjas scouring the environment for hidden areas. And sadly, this structure continues throughout the adventure without the introduction of any major gameplay enhancements.

To many, *Tomb Raider*'s weakest aspect was its combat element, and similarly, one of *Fighting Force*'s downfalls was the awkward nature of controlling fighting characters within a 3D world. Achieving a truly playable 3D combat system is a difficult task – it's no coincidence that, despite the titles' 3D appearance, the gameplay of the *Virtua Fighter* and *Tekken* series has remained firmly rooted in the genre's 2D origins.

Ninja's inspiration clearly comes from the *Ghosts 'n' Goblins* and *Shinobi* side-scrolling eras, so why the move to 3D? After all, Treasure's *Mischief Makers* demonstrated what could still be achieved with two dimensions as long as a little thought and imagination was applied. By opting for an additional dimension, Core has introduced too many degrees of freedom into the scrolling beat 'em up equation. Fighting with throwing knives you're almost always uncertain as to whether a particular strike is going to connect with an enemy or miss completely.

Commendably, however, the camera system works well for the majority of the time, although its high-angled nature prevents the possibility of spotting any advancing enemies until you're almost on top of them, leaving precious little time for players wishing to come up with any form of attack strategy.

On the positive side, the lighting and graphical effects are impressive, particularly when deploying any kind of magical offence or evading enemies with the help of a smoke bomb. Admittedly, the lead character possesses plenty of moves, the fighting is more accessible than previous Core titles, and the martial arts/oriental setting adds much to the proceedings. And the overall look of levels is also good, and fairly representative of their individual settings, while the numerous trap-like events keep players on their toes at all times, injecting a much-needed air of tension.

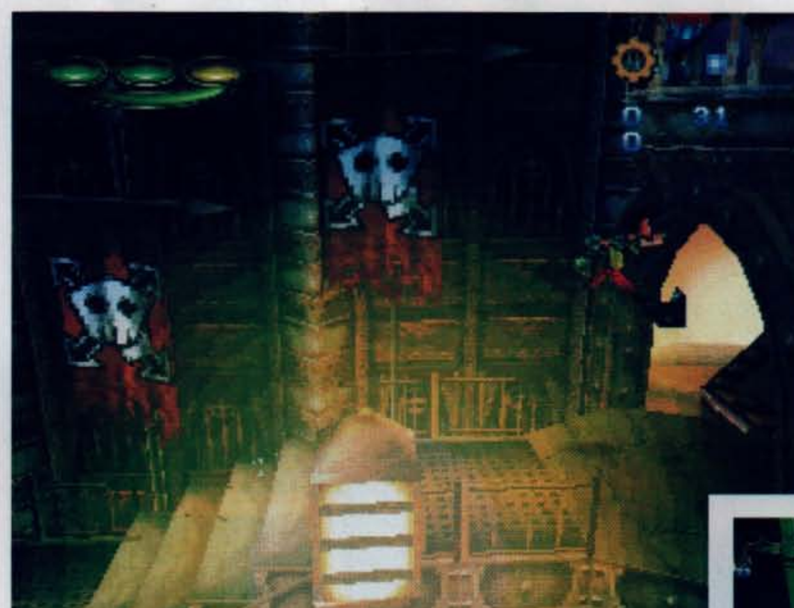
But ultimately *Ninja* is a title that would have gained immensely from remaining in the 2D approach of the arcade classics that inspired it, rather than becoming the ungraceful 3D confusion it all too frequently is.

Edge rating:

Six out of ten

WILD 9

Format: **PlayStation**
Publisher: **Interplay**
Developer: **Shiny Ent.**
Price: **£45**
Release: **Out now**

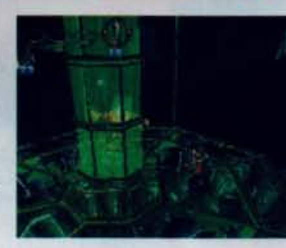








The game's side-scrolling platform sections can be genuinely entertaining, and while unlikely to keep older players hooked for long, youngsters should love it



Unlike its competitors, *Wild 9* occasionally throws a surprise or two into its platform equation





Disposing of enemies is only limited by the player's imagination, which promotes the idea of a real world in which the character plays an integral part

Having entered the pseudo-3D platform arena so favoured by PlayStation developers, *Wild 9*'s priority should have been the implementation of innovative ideas, and to its credit, in pure Shiny tradition, the company's latest product does a few things differently to its many competitors.

Despite the occasional into-the-screen racing 3D section used to break up gameplay, for the majority of the game Wex (the player's character, aimed at the US teen market) is on foot, dealing with a barrage of enemies. The levels he traverses are commendably large but, while a short alternative route is occasionally offered, they remain mostly linear affairs as Wex dashes to the end of each level in order to save one of his friends held captive by the post-apocalyptic bad guys. Along the way, though, rather than merely disposing of adversaries – which seem to retain very similar attack patterns, despite obvious cosmetic differences – in non-stop style, doors need unlocking, fans need activating and levers must be pulled.



Into-the-screen sections mix with the more traditional levels

While these elements are unlikely to further the platform genre, Wex's fighting method is of interest. Once grabbed by a 'Ghostbusters'-like stream of energy, the missile-firing enemies can either be smashed into the ground until they explode, or (depending on your leanings) fed into the nearest shredding device, decapitated by ceiling-mounted fans, burned, electrocuted, thrown to their deaths – the list goes on. Apart from the amusement factor, this aspect does manage to convey the immersive sense of a functional – albeit fictional – world which, more often than not, is sadly missing from titles such as this.

But, regrettably, *Wild 9* is not without its faults. Some of the sections throughout the levels prove stupidly frustrating and occasionally check points appear wrongly positioned, which heightens the irritation level. Furthermore, the scenery can obstruct your view of the action and the 3D 'intermission' sections don't work as well as they might – although they do provide a welcome interlude to the otherwise repetitive platforming business.

With a few ideas of its own and occasionally fresh approaches to a tiring genre, *Wild 9* is bound to attract a younger audience looking for its next PlayStation platforming fix. The majority of players, however, are unlikely to succumb to its charms.

Edge rating:

Six out of ten

LEGION OF HEROES

Format:	**PlayStation**
Publisher:	**Capcom**
Developer:	**In-house**
Price:	**¥5,800 (£25)**
Release:	**Out now (Japan)**









The sheer range of moves and special attacks in *Legion of Heroes* puts even previous Capcom fighters to shame. Edge favourites include the eccentric take on the sport of baseball (above)

While **Edge** would be reluctant to describe *Legion of Heroes* as a radical departure for Capcom, it's certainly a title that builds upon *Street Fighter* mainstays to an unusually advanced extent – a 'wild card' from a company renowned for restrained updates of its beat 'em up franchises. For gamers who favour a *Tekken* or *VF3*-style fighting game, *Street Fighter* titles appear almost analogous. Yet, with its own unique character and a raft of 'new' features, *Legion of Heroes* can genuinely be described as both familiar *and* distinctive.

Like *X-Men Vs Street Fighter*, you choose two characters per session. Although a switch is only possible between rounds, this adds a curious strategic element to play, enabling you to choose the character best suited to an opponent. The limitations of the PlayStation's CD-ROM lead to a pause of about three to five seconds during changes, but the concept is sound.

Companion fighters also make cameo appearances during *Legion of Heroes'* outlandish, even eccentric, special attacks. Reminiscent of the outrageous moves found in *Final Fantasy VII's* battle sequences, these assaults are invariably 'on rails', yet careful fine-tuning ensures they rarely last *too* long.

The choice of a polygon-based engine and the addition of a dodge move sees Capcom's usual strong emphasis on aerial assaults considerably reduced. Such attacks remain effective in context, but *Street Fighter* veterans will be initially perplexed by *Legion of Heroes'* propensity for toe-to-toe pugilism. Instead, you can choose to construct *Tekken*-like punch and kick combos, with 'jab' and 'strong' versions of each. Juggles, too, are a hardly innovative but nonetheless notable addition.

Set to be renamed *Rival Schools* for its release in the west, *Legion of Heroes* is supplied on two CDs can be played in either generic arcade or a PlayStation-specific 'Evolution' guise. The latter, sadly, will be incomprehensible to all but those who speak Japanese, with its reams of text and multifarious menus. *Heroes* is, however, beautifully presented, with huge amounts of hi-res art and intriguing options. Refreshingly, the second disc is set for inclusion with the UK conversion.

The continued success of the *Street Fighter* series, and its derivative companion releases, presents Capcom with a creative dichotomy. It has a winning formula at its disposal, and with its target market satisfied with 'mere' tweaks and visual refinements, why should it discard a game engine and design brief that reaps such financial and critical rewards? But the old dog *can* learn new tricks. While hardly a generational leap, *Legion of Heroes* is certainly an evolutionary step for Capcom. And, given that its only major flaw – the annoying breaks for disc access – is intrinsically the PlayStation's shortcoming, it would be rather churlish to berate Capcom for attempting to push Sony's ageing hardware.

Edge rating:

Eight out of ten











Although static shots do it little justice, the 'blurring' effect used in many 'super' moves (above) looks marvellous during play, with fabulous animation

BRAVE FENCER MUSASHIDEN

Format: **PlayStation**

Publisher: **SquareSoft**

Developer: **In-house**

Price: **¥5,800 (£25)**

Release: **Out now (Japan)**





Musashiden **reinforces its tongue-in-cheek style with the fully posable** ***Brave Fencer*** **action figure (top). Elsewhere, the townsfolk provide the usual RPG clues**



Musashiden's **main action levels are quite short but each is high on variety**











Although full of recycled action RPG ideas, ***Brave Fencer*** **has been designed with care and attention, offering the usual ingredients** ***and*** **some new features**

Although cynics may claim that the anticipation and subsequent success of *Brave Fencer* among Japanese gamers is due to its carrying an extra disc containing playable demos of *Final Fantasy VIII* and the arcade fighter *Ehrgeiz* (both previewed last issue), to do so without sampling Square's most accessible PlayStation title to date would be to do it a severe disservice.

Although never really attempting anything new, the game is packed with neat touches and sharp ideas. If you've a long memory and a games collection to match you can't fail to spot parallels with Konami's first SNES *Goemon* outing in its continual mix-and-match level design, lightweight RPG leanings and pseudo-historical setting and comedic characters.

From the outset it's clear that Square has taken the same approach with *Brave Fencer* as it did with *Einhänder*: refine and enhance. Rather than re-invent the action RPG, it has polished an established formula. The switch to 3D notwithstanding, it's with the small enhancements that the game really innovates. A slowly changing day-to-night feature may be more commonplace (and was experimented with by Square as far back as 1995 for the third in the *Mana* series), but *Fencer* builds on it by tying the onscreen clock more closely to the gameplay. Shops in the villages are only open during normal trading hours, guards can be caught away from their posts at night, and townsfolk won't open the door should you attempt to bother them at 3am in the morning. In fact, the game even includes a sleep feature whereby you can accelerate time, reclaim lost energy, and advance the clock to a more advantageous setting.

But *Brave Fencer*'s RPG trappings, such as buying armour and gleaning clues from town inhabitants, are merely there to bookend the game's crowning glory – its action levels. Not content with the usual graphical changes, *Fencer* continually surprises the player by changing gameplay parameters – from negotiating a *Klonoa*-style restrictive route to a more open, free-ranging setting with an albeit simple puzzle to solve, ending with a setpiece into-the-screen chase. Even straightforward hack and slash levels are complicated by Musashi's ability to absorb new abilities from the various enemies and thus negotiate previously unreachable areas.

With Square yet to release a truly bad game on the PlayStation, *Brave Fencer Musashiden* is yet another example of the ways in which the company is pushing the boundaries of its core RPG market without risking an expensive and reputation-damaging experiment. Gamers can only benefit.

Edge rating:

Eight out of ten

DRACULA X

If Saturn owners could be granted one last wish before their beloved console is finally lowered into the videogaming vaults, then a custom-designed version of *Castlevania* would be a laudable request. After all, Konami's series has always embodied a suitably hardcore appeal, and was also something of a benchmark for sophisticated 2D – both of which are the Saturn's *forte*. So it's a shame that what should have been a match made in heaven has resulted in little more than a clumsy port of the PlayStation game released last year.

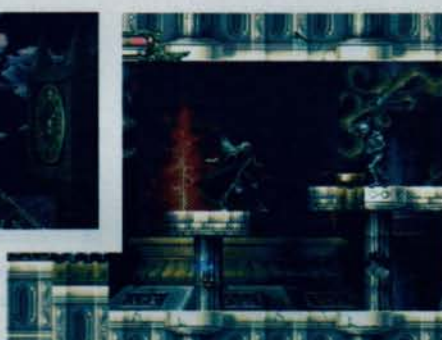
The Saturn version loses marks in a few areas, with intrusive loading and frequent slowdown being the main culprits. But while such flaws are unforgivable, they hardly detract from the overall quality of the game – possibly the strongest instalment in the series yet. RPG overtones, huge, sprawling *Super Metroid*-style environments and subtle atmospherics combine to make it one of the most engrossing 32bit games created. And with two new levels, some remixed music and extra selectable characters, Saturn owners can even feel they have their own tailored version.

But sadly there's a snag. And it's quite a considerable snag. As *Dracula X's* ingenious design can only really be appreciated when playing with Alucard, an understanding of written Japanese is necessary for full enjoyment and completion of the game. And with no western version planned, what could have been the console's swansong seems more like a final frustration for Saturn stalwarts.

Edge rating:

Seven out of ten





Sega's *Dracula X* is rougher around the edges than its Sony namesake

Format:	**Saturn**
Publisher:	**Konami**
Developer:	**KCEN**
Price:	**¥3,800 (£16)**
Release:	**Out now (Japan)**





You can now select Maria from the outset (top) although Alucard provides the meatier experience. The latter relies heavily on Japanese text, though

RADIANT SILVERGUN





Treasure's latest is quite possibly the greatest ever showcase of the Saturn's suite of custom hardware effects. It's also one of the most gut-wrenchingly tough shoot 'em ups ever made

As one of a dying breed of software designers, Treasure has been reluctant to ditch its commitment to old school gaming principles. But it's paid off in the past, and it pays off here – this Saturn blaster impresses just as much as Treasure's legendary Mega Drive classic *Gunstar Heroes* did in its day – and eclipses the legions of vacuous shoot 'em ups designed for the 32bit era.

Swiftly ported from the much under-exploited ST-V coin-op to Sega's neglected console, *Radiant Silvergun* is arguably the finest technical showcase the Saturn has ever played host to. Polygonal structures tower above stunning, hi-res parallax backdrops, Mode 7-style distorted playfields are rotated and zoomed, and 3D polygons are juggled effortlessly to create some of the most imaginative bosses yet seen.

Thankfully, Treasure has invested an equal amount of time in the design of the gameplay mechanics, too, to ensure that it oozes hardcore appeal in every way. A diverse weapon system coupled with subtle bonuses and player reward systems saves it from any possible accusations of being mere eye candy – however, it is frustratingly tough throughout, occasionally sacrificing fairness for an endless onslaught of visual pyrotechnics.

You'll be rewarded for your perseverence, though, if you're prepared to learn its intricacies (although it's doubtful whether the arcade mode's infinite continues will be neglected for long). As a last-ditch attempt to show just how much clout Sega's machine packs when intelligently programmed, *Radiant Silvergun* is a wonder to behold. Inspired, high-octane blasting.

Edge rating:

Eight out of ten



Unusually for a shoot 'em up, *Silvergun*'s designers have included subtle player reward and bonus systems to increase its replay value

Format:	**Saturn**
Publisher:	**ESP**
Developer:	**Treasure**
Price:	**¥5,800 (£25)**
Release:	**Out now (Japan)**

PROFILE: King of the Jungle



Kings of the jungle: (from left) Stephane Koenig, Joe Myers, Raffaele Cecco, Paul Margrave, Mark Bentley

With a heritage that trails all the way back to the Sinclair Spectrum's glory days with titles such as *Exolon*, King of the Jungle (see *B-Movie* prescreen, p30) seemed worthy of further investigation.

Edge met co-directors **Raffaele Cecco** and **Stephane Koenig** in their attic boardroom along with company audio-visual mainstay, **Joe Myers**, to find out more…

Edge: How was King of the Jungle created?

Raffaele Cecco: We were working at Vivid Image, which did *Street Racer*, and I was working with Steph for quite a while. One day we just decided to set up our own development company – I'd been in the industry for so long that I wanted to move on and do something new. Ironically I've ended up doing the same thing, but at least its for myself now.

Edge: What are your aspirations for the company?

Stephane Koenig: [laughs] Um… It's just to have control over what we do and when we do it. And it's to be making our own games, and not someone else's. We thought we could get the right people together – we made a few mistakes [two of Jungle's previous directors decided owning Ferraris was the best way to make a game], but we learned from them.

Joe Myers: We knew what mistakes could be made, but generally those were made in previous games.

SK: Yeah, all the shit games! [laughter all round]

RC: Initially, as a company, it's just about getting by, but now I think we're getting to the stage where we can think a bit further into the future – about the games we'd like to do and how we'd like to expand.

Edge: You started out as a two game company. Is that something you'd like to go back to?

RC: I think so, eventually. What we want is slow, controlled expansion.

SK: A lot of companies balloon and then they have management problems to deal with. Some do it successfully, but small companies lack experience of working with huge amounts of people. We'd like to take on enough people to do the next game comfortably, and if that works out it will spawn a new team, rather than suddenly bringing in a new group.

Edge: What quality do you think defines King of the Jungle games?

JM: Fun!

SK: I think it's the polish on the game, the speed the game runs at. I can't see us doing slower, more adventurous games. We like fun, fast games; the kind of thing you can just pick up and play.

Edge: Finally, sum up King of the Jungle in three words.

JM: Um… 'Bunch of geezers.' No, 'Fun lovin' criminals.'

Workstation

The first of **Edge**'s attempts to discover what makes today's videogame technicians tick, via scrutinising their places of work. This month's guinea pig, **Rob Grey**, is an artist working on *Bloodshot*. Here he talks **Edge** around his office environment…

Flags "These were simply used as source material for a baseball game we did years ago. Not very exciting, I know, but that's the Yanks and the Canadians for you (joke!)."

Guns "Sometimes we have long, heated discussions, and I find an automatic weapon very useful in such circumstances. Actually, no, they're just plastic BB guns."

Bed "I bought this because sometimes there's no point in going home by the time I've finished work, only to come back in a few hours later. It's all about deadlines."



Weird-looking thing "No, it's not Tina Turner's wig – it's a crazy '70s optic fibre lamp. Although I do sometimes run around the office with it on my head, singing…"

Pink baseball bat "This has been used several times on awkward project managers and directors."

Outrageously loud stereo system "Fantastic late at night; terrible through the day for anyone within a five-mile radius."

Car "It's an alarm clock that goes 'broom, broom' to wake me up at the crack of dawn for more work."



Edge moves

Programmers, artists, engineers, producers, animators, project managers – they're all essential to the industry, and they all read **Edge**. The following pages carry a phenomenal variety of jobs for graduates, professionals and any other interested parties who think they could make it in the videogame scene. Apply within...



The trials of a start-up developer: part one

Demis Hassabis started in the industry at the age of 15 working for Bullfrog Productions. During his time there he co-created *Theme Park* with Peter Molyneux. It went on to become one of the most successful titles of all time, selling over 3.5 million copies. After graduating last summer from Cambridge University with a Double First in Computer Science he co-founded Lionhead Studios with Molyneux and Steve Jackson (of Games Workshop fame). He resigned his position there six months ago to set up his own independent development house, Elixir Studios, based in North London. Over the coming months he'll be chronicling the birth of his codeshop here in **Edge**.

1. Taking the Plunge

"As I slouched back in my comfy chair at home, staring into the dark sky outside and listening to the sombre tones of the 'Blade Runner' soundtrack (track 12, 'Tears in Rain', on continuous repeat) the ramifications of my decision began to sink in. I had traded what was in effect a sure-fire success for something infinitely more risky. Collaborating with Peter Molyneux over the last six years had been an extraordinary experience and also a very successful one. He is one of the most talented people I know and also arguably the greatest games designer in the business.

However, it had always been my ultimate dream to set up and run my own games company. So when the opportunity arose for me to be able to do my own thing, I felt I had to grab the chance. Foolhardiness maybe, but I had to take the plunge otherwise how would I ever know? You only get one life, so you have to give it your best shot and try with all your might to make your dreams and ambitions come true. So there it was, I had chosen to accept the biggest challenge of my life so far. And with these thoughts resolved my final doubts drifted away and I turned my attention back to working on the plan of action for the next few weeks.

First thing the next day I went into a 'phone call frenzy'. The first call I made was to my good friend, Dave Silver, to tell him the news. He was the first person I needed to get on board, as I was counting on him being the other director of the company. Although he had known that this scenario had always been a possibility, as we had semi-seriously discussed it many times since the second year at university, he hadn't had much warning as to the timing. To my relief he was still as enthusiastic as ever about the idea, and incredibly excited at the prospect.

Dave is an AI expert, but when you look at his background you could be forgiven for thinking that he was some kind of AI! His academic record is sickeningly flawless culminating in him achieving the highest ever finals average in the history of Cambridge Computer Science – although we haven't ruled out the distinct possibility that he may have hacked into the Cambridge network, found the results database and altered his exam marks...

The next calls that I made were to follow up on some of the informal promises for initial seed capital that had been tabled by some City investor types who knew me. All that remained was to convert their offers into concrete funding. Things were made easier due to the fact that I had known them all for years from my chess-playing days, as in another life I was destined to become a professional chess player. Luckily we all saw the error of our ways and realised that although chess was fascinating and one of the best balanced games ever invented (due to millions of hours of beta testing throughout the ages!) it was too narrow a pursuit to dedicate your life to. It is strange how life seems to come round full circle, and people that you last saw in the mists of your past turn up again in the future in totally new surroundings.

"Trying to come up with a cool name might sound trivial, but I've been involved in doing it three times in the past, and each time it has grotesquely deformed into a nightmare job!"

I firmed up several meetings for later that week, which meant that two tasks urgently needed doing. A detailed business plan would have to be drafted up, and a name needed to be chosen for the new company. Now business plans are one of the most tedious and time consuming things that anybody attempting to getting funding for a start-up has to do. Unfortunately a sound business plan is a totally essential prerequisite to have any chance of getting funding and actually useful to the company later on. A few all-night sessions later and it had been thrashed out, printed and bound.

Trying to come up with a cool and vaguely relevant name that no one else has used before may sound like a trivial undertaking, but I have been involved with doing this on three separate occasions in the past and each time it has grotesquely deformed into a nightmare job! This time I came up with a list of a dozen or so possible names and ran them past Dave. We decided we liked Axiom Software and Elixir Studios the best, but when I checked the names out we found that there was Axiom 'everything under the sun' Ltd, so that made the decision for us and we went with Elixir. For once it had been a relatively painless task! The dictionary offered the rather flamboyant definition of elixir as 'the quintessential part of any substance'. Obviously I had no clue as to what this meant but it sounded good all the same.


Dave Silver and Demis Hassabis

So, armed with my makeshift business plan and some press cuttings of *Theme Park*, I was ready to take on the might of the City sharks. The battles were just beginning. In my mind I also knew who else I wanted in the team, now there was just the small matter of convincing them to risk all and join the new venture..."



Photography: **Mark Koehler**

AN•AUDIENCE WITH TRIP HAWKINS

Edge meets the changing man: Trip Hawkins is legendary software guru turned hardware guru turned software guru...

Imagine you initiated the Gathering of Developers and you're trying to explore new ways of publishing games. Or you're VM Labs, and you want to learn how (or how not) to break into an incredibly competitive hardware market. Talk to **Trip Hawkins** – he's seen it all before.

Back in the 1980s, Trip Hawkins grew Electronic Arts into the biggest entertainment software developer in the world. In the early '90s, sensing the possibilities of CD-ROM and a growing dissatisfaction with the Sega/Nintendo duopoly, he shifted his focus to hardware. But his 3DO platform, dogged by a lacklustre launch, expensive pricing and a lack of showcase games, never achieved its potential. In 1997 3DO sold the follow-up technology, codenamed M2, to electronics giant Matsushita. The company was renamed 3DO Studios, and Hawkins' focus is once again on software.

With the games industry currently overshadowed by question marks, it seemed the ideal time to visit the temple of Trip Hawkins, a veteran entering his third decade in the videogames business.

Edge: You've spoken about the increasing length of time and resources game development consumes, and how you're trying to create a publisher here at 3DO which manages those difficulties. But isn't there a key trend in the way talented people are leaving publishers to start up their own studios? For instance, Ron Gilbert goes off to set up Humungous Games, and finds his own star staff like Chris Taylor [*Total Annihilation*] leaving in turn.

Trip Hawkins: Well, when you are in a climate where it looks really easy to start your own company and then sell if for a huge amount of money, people will try to do that. It was that way in the early '90s, but it's not that way now. Taking Ron Gilbert as the example, he sold the company and is now an employee of GTI. He is back in a big company.

Edge: So it's just about money?

TH: If you wanted to explore Ron Gilbert's reasons, obviously you would have to ask him. But I think people will leave a place if they don't like working there, and they will join a place if they think they will like working there. In our case, here at 3DO we try to maintain a feeling of being a really small company and a feeling of real intimacy.

Edge: Is it because the industry is one of heroes, with people like Peter Molyneux, for example. One of the individuals who helped Molyneux set up Lionhead after leaving Bullfrog has already gone on to start his own studio...

TH: I think there are a lot of people who are grabbing at things and not maintaining a commitment. That may work for some people, but it's not going to work for most people. I think in this industry now, team play is more effective than a prima donna approach to creative thinking.

In music, what works is the prima donna. A musical performer can go in and record a hit song in a day. So it makes more sense for that industry to be focused on looking externally for millions of voices that may have the next great song in their head. But if you look at what we do now, there is so much more focus on the engineering – and the need to keep a group of people working together over a long period of time – that it makes more sense to try to figure out how to build that systematically.

Edge: Someone else making parallels with the music industry is the Gathering of Developers. Couldn't promoting development teams and offering an over-arching structure for them to operate within be the best way forward?

TH: I think what it's trying to do is exactly what I did successfully in the 1980s with Electronic Arts. It certainly is not a new idea. It doesn't work as well as it appears at surface value either, in that if all these independent groups are being funnelled through one entity, and yet independent groups have complete creative freedom from each other, you are not going to get any consistency. Also, at least in my view, I don't thing GoD is being that selective.

Edge: Do you think that creative people are as important these days?

TH: The creativity is still important, but now you have to add a really systematic engineering discipline to it. I think GoD will have some good

"The chance of success is not very good. Nobody should be surprised when a new hardware platform doesn't meet with success"

"I wanted to find the guy who was so determined to prove that his idea was better that he was going to kill himself to do it. That was the kind of passion that really great things came from"



products and it will also have some products that don't sell. It has to get out there and show enough products to discover that not everything it puts that label on is going to be a best-seller. The reason it doesn't yet know that is because it is a bunch of developers. I mean, historically, any time something that developers are involved in doesn't sell, who do you think they blame? They don't blame themselves, I guarantee that.

One of the reasons the strategy worked so well in the '80s with Electronic Arts, was that in those days one guy by himself could do the whole thing. I consciously wanted to find the prima donna, I wanted to find the guy who was so determined to prove that his idea was better that he was going to kill himself to do it. That was the kind of passion that really great things came from. But back then you still had the opportunity to go into a fairly undeveloped retail channel and put all these things on a shelf and they would all have their shot.

Edge: With so many truly good games out already, the challenge seems to be to rise above the noise level.

TH: That's part of the cleverness with games like *Army Men*. We are connecting it to something people are already familiar with. Obviously what is clever about a game like *Heroes of Might and Magic VI* is that it's part of a series that people are already familiar with. You just can't understate how important it is to create some kind of connection.

Edge: Do you think that it's a shame that the growing user base seems to be reducing the number of successful titles?

TH: I don't think it is reducing it. There are a lot of games on the PC market, but I would say probably the same or a larger number of them can be commercially successful. There has been a lot of growth in the size of the libraries for Nintendo 64 and Sony PlayStation, with quite a few titles being good selling games.

Edge: Well, in the UK last year, 17 out of the top 20 PC games were sequels.

TH: The way I look at it, is when you make a sequel you can't sell them the same game because they already own it. What they want is to continue to play the game that they know they like. It shouldn't surprise us. If you look at our parents or their parents and the kind of games that they play, they will pick a sport like golf, or a game like chess, and they will play it their whole life. If somebody is a golfer, they might well try another course or buy a new set of clubs, but they still want to play the same game.

Edge: That's an interesting way of looking at the whole issue...

TH: In England, there is obviously going to be a lot of football games. That is largely *the* most important subject matter in sports that people are going to want to buy games based around. There are going to be manager games, action games, and strategy games. The issue isn't so much why are the best-selling charts dominated by sequels, the issue is how are you going to make a game in a category that somebody cares about that is going to compete with what is already established there.

Edge: Where would you rather be to address these issues, EA or 3DO? That's to say, do you see the whole hardware thing as a bit of a detour you wish you hadn't taken?

TH: Well, first you have to start with why I have done the things I have done, and it comes back to my commitment to the gamer. I have been here for 25 years trying to make the gaming experience the best it can be, and I will probably be here for another 25 years doing just that. With Electronic Arts, things had matured to a point where it seemed like the thing that I could do that would be most beneficial to the gamer was to get involved and help push an agenda that was more on the hardware side of the business, and that led to the creation of 3DO. And when it became clear that 3DO wasn't needed by the industry to push that agenda, and that other companies like Sony had in fact very successfully helped the industry to move forward, then it was possible for me to go back to my first love – making the software.

I think you can compare Electronic Arts to any large media group like Time Warner. 3DO is more like LucasFilm. It's smaller, it's much more focused on a handful of areas and I am personally very involved in the creation of products.

Edge: You get involved creatively?

TH: Totally. A lot of the games we make are my ideas, or if it's not my idea I'll make significant contributions to the design. It's a lot of fun for me to be able to work with creative giants like several of the people we have here.

Edge: Looking at the 3DO hardware platform, you've suggested Sony achieved what you set out to do. Do you think in retrospect there are things you could have done to put 3DO in the position Sony enjoys today?

TH: It's hard to say. I would point to three things that I think were critical to how things turned out. One is that I think Sony and Nintendo both have very comprehensive business strategies that are orchestrated by one company. In this industry that's a big advantage. It



was a lot harder with 3DO to be orchestrating a federation of companies. The second factor is that we were very early in the use of CD-ROM technology. With 3DO being such an early adopter of that technology, it was much more expensive, and in hindsight now I would probably say *too* expensive. But we are not the only company that discovered that. Certainly, Philips with CDi, and AAC with turbo graphics...

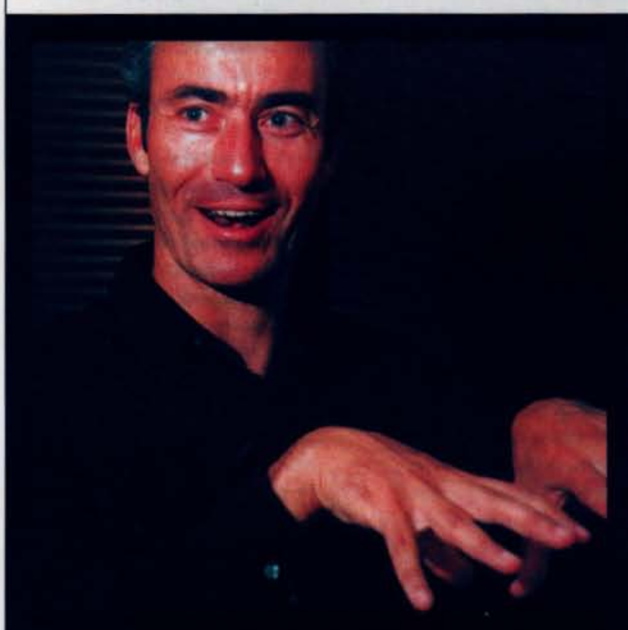
Edge: Commodore's ill-fated CDTV...

TH: There were quite a few attempts, and they were all too costly. Sega also struggled with Saturn and even Sony struggled until it was able to bring the price down.

The other thing that was a big problem from a costing point, was the cost of computer memory. A 32bit system like 3DO used a lot more RAM than the previous generation had, in part because we were using a CD.



"People want to continue to play the game they know they like... If somebody is a golfer, they might well try another course or buy a new set of clubs, but they still want to play the same game"



Edge: It was a terrible time to do that, with RAM being so much more expensive.

TH: Normally you can count on RAM going down in cost by 50 per cent every two years, and ironically from 1992 to 1995 computer RAM went up in price. The sales rate of Sony PlayStation hardware really took off in 1995 and that's because it went ahead and made the commitment to bringing the price down.

Memory prices just dropped through the floor in early 1996. Sony had very good timing, and was being aggressive about its pricing, and then having the memory prices change suddenly provided fuel for that strategy. Basically, by that time 3DO's window of opportunity had already passed.

Edge: There have been criticisms of 3DO's thirdparty support, which obviously Sony did brilliantly. Do you think that was a factor?

TH: I don't think that was a factor at all. I think in hindsight, if you went and talked to a lot of people now, and made fair comparisons, I think you will find that people were generally pleased with our thirdparty support. In fact, some of the executives of Sony told me that they copied elements of their licensing program from what we did.

Edge: With Project X, VM Labs seems to be doing a very similar thing to what you tried with the 3DO platform – working with a federation of manufacturers with the common thread being DVD and MPEG-2 decoder chips instead of CDs. Do you think it's got a chance?

TH: I have been in the business since it began and there have been over 200 different incompatible formats. You can pretty much count the big successes on your fingers, so the chance of success are not very good. Nobody should be surprised when a new hardware platform doesn't meet with success.

Edge: What do you think a new hardware vendor needs to do?

TH: I think the way the market works now, you have to have good gaming technology, but you have to introduce it at a very aggressive price point and you have to have strong software support, and it's very hard to get all those elements going for you on day one. Sony is in a strong leadership position right now. It has a CD machine, which means its lifecycle will be different from the previous cartridge machines. The cartridge machines get killed off very rapidly because of the inventory risk on the cartridges scaring everybody off.

When Sony brings out its next generation machine, it will not only be the best technology that anybody can do – there is no reason for them to bring it out unless that's the case – but I believe it will be very straightforward for them to support DVD, movie playback and Internet access. And if it chooses to do that, it's going to make it very hard for anybody to compete.

Edge: How do you cater for that uncertainty?

TH: At least in the short term, you really have to look objectively at what Sony can do – and what Nintendo can do as a strong number two. From our perspective we are a smaller company and we don't really have the resources to support every platform anyway. The first priority for us is to create some great products and get them established in the minds of the consumers, and the second priority is to get those franchises onto multiple platforms. We also want to get in position to be a strong supporter for Sony's next generation machine and beyond that, as with any company, it is very hard to try to bet on all the horses in the race.

Edge: You've previously suggested that a set-top box scenario will come about eventually, but you seem to think it's going to take the leadership of Sony to create the demand, rather than the demand arising – which must be what VM Labs, for example, is banking on.

TH: Well, what the consumer thinks they are buying is a movie player. They are more likely to want to buy



a movie player that is a Sony brand. If they are buying a movie player, but it's a lot more expensive than the other movie players because it has got a whole bunch of videogame hardware in it, the only thing that is going to make them choose to buy it is if the hardware company underwrites the manufacturing cost by just losing money on it initially – which Sony has proved it is willing to do, because it has the software business on back end.

Edge: You can't do that if you've got a federation.

TH: Well, if the way the federation works is that the hardware companies don't have a tremendous economic incentive to lose money on hardware, then you're right, it won't work.

Edge: What about Sega's Dreamcast. Do you think it's got a chance?

TH: I think everybody knows Sega is not the company it once was. At the same time, it is a great software company, but you need to look at its track record as a consumer hardware company and you need to look at the requirements for success in the market. Again, looking at Sony as a competitor, by the time Dreamcast comes out, Sony will have the PlayStation out at $99 with a great software library and it will have already announced the next generation machine – which is undoubtedly going to be superior technology to what anybody else is doing, and it has DVD support for it as well. That is going to make it hard for anybody, no matter how strong your brand is.

Edge: Do you think Sega has played its hand too soon?

TH: It is hoping that there are some customers out there that have had a PlayStation long enough and are ready to get a new machine. I think that is the right thing to do, that's the right place for them to focus, but it is still a narrow window.

Edge: Do you think Sega could go the same way 3DO did and become a software company? That would seem to be one of its strengths...

TH: People have speculated about that for years, including people at Sega.

With Sega being as good as it is at arcade games and software, it's a little like being as good as the Disney company at making animated films and then releasing them on home video. Sega making consumer hardware is like Disney deciding it should only release its home movies on a proprietary Disney video format. That's what makes it an interesting question. It has some success with proprietary hardware, but it has also limited the software market share by not being on the other formats.

Edge: With Dreamcast including a modem and Sony also likely to offer one with the next machine, do you think it might be the time for a multiplayer game, such as your own title *Meridian 59*, to simply explode? If there's an installed base of say five million, and all a user has to do to log on is click a button to join.

TH: When you say five million, you have hit on the right thing. Everybody already had a PC before they started using the Internet, and you need to go out and sell a lot of console machines, and have a large installed base of them, before you introduce the modem card. And when you first introduce the modem card, probably the right starting point is just to support a browser, which allows you to access Websites and to do email, and then once enough people have bought that you've got an installed base for a new kind of gaming, but I think you have to take it step by step.

Edge: It's like the classic fax machine example – the first fax machine was worthless because there was no one to fax messages to. Every machine after that becomes more useful.

TH: Right, it's a critical mass problem. Of course, everybody is going to try to push that angle. I don't believe the Internet angle on a console is enough to cause the sale of the machine. Historically, you are dealing with a product purchase category that is predominantly male. Any guy typically has to go to a 'board of directors' and get approval for the purchase, and that is either going to be mom or the wife. But if the gaming console has some actual family value, if it is not just a toy, if you can use it for electronic mail and checking out Websites, then that is one chunk of value.

Edge: The same sort of excuse people use to justify the purchase of a PC...

TH: I think DVD is more important, though, because everybody already watches movies. It is inevitable DVD will do for movies what CDs did for music. Both are important. The reason they're important is that you can get the benefit without adding too much to the cost. You don't have to provide a modem card – it can be an add-on. And DVD drives don't cost that much more than a CD drive.

Edge: Finally, how big do you see 3DO getting in the future?

TH: I am not particularly concerned about achieving any particular size. What I do want to do is grow it organically and make sure we build it brick by brick and that we always do things that are the best.

Edge: So where will you be in 2010?

TH: 2010? I will be here making great games. I'm not too sure about the hardware, though!

"If the gaming console has some actual family value, if it is not just a toy, if you can use it for electronic mail and checking out Websites, then that is one chunk of value"



Gallery

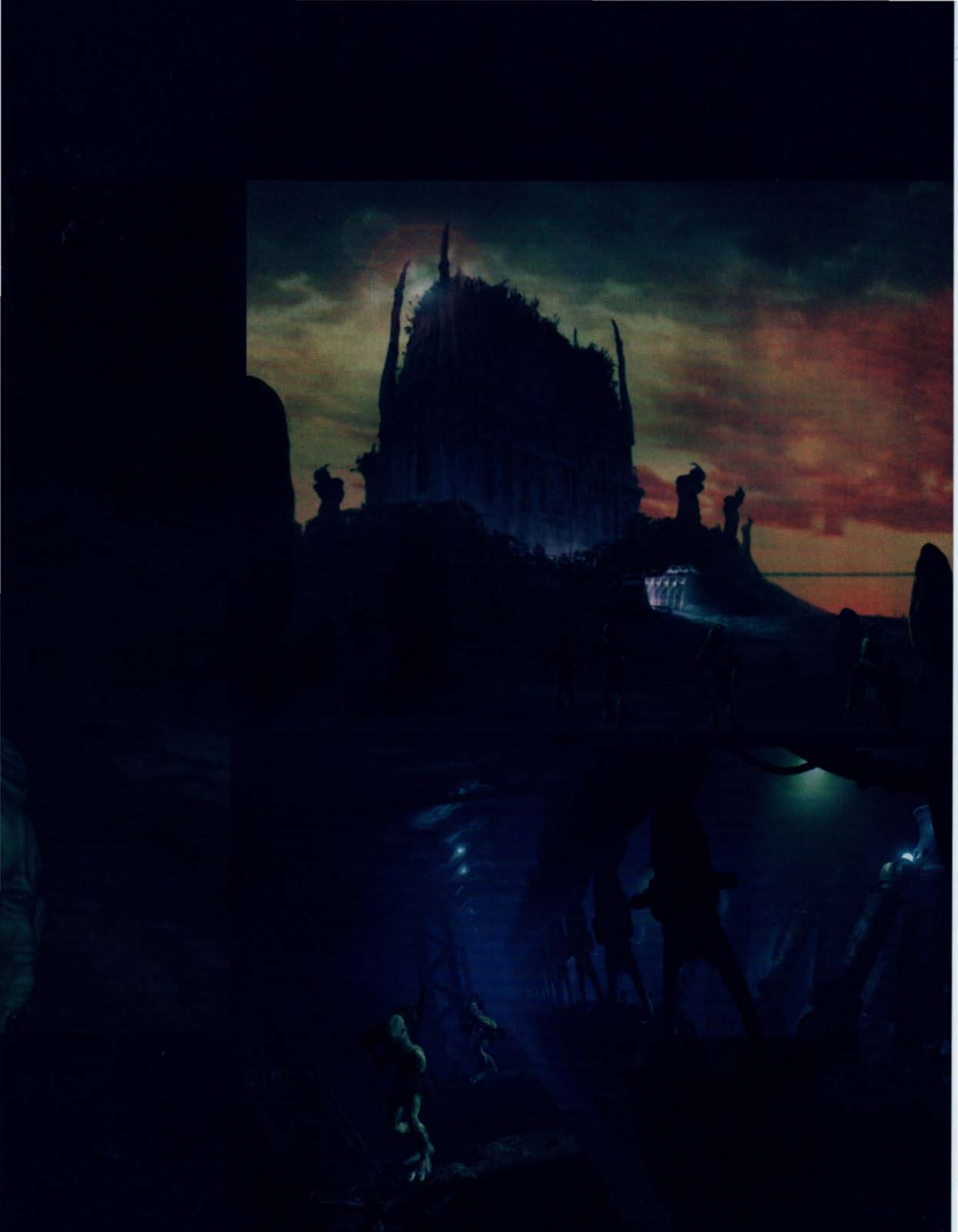
The art of the videogame





Things just go from bad to worse for the Mudokon people. In *Abe's Oddysee* they suffered the indignity of having their mouths sewn shut, but as the render left reveals, the situation has deteriorated. Now, in *Abe's Exoddus*, to conceal from them the horrific task of mining their ancestors bones (for crushing into Soul Storm drinks), the Mudokans' eyelids have been sealed. Luckily, Abe (main image) is here to save the day – again

Images rendered at Oddworld Inhabitants' Californian studios using SGI and Alias software









Taking its inspiration from *Ghosts 'n' Goblins* and the Chris Burton animation 'The Nightmare Before Christmas', this 3D adventure from SCEE is an original spin on good versus evil. Sir Daniel Fortesque is *Medievil*'s skeletal hero (above and far left) destined to destroy his thoroughly evil arch enemy Zarok (left). The original and detailed graphics advocate a sense of humour and fantasy that Sony assures is also present in the gameplay

Images created by artist Jason Riley using Alias software

STAR WARS TRILOGY ARCADE

SEGA ATTEMPTS TO HARNESS THE FORCE WITH A MODEL 3 INTERPRETATION OF AN OLD FAVOURITE

Developer: AM Annex
Release: Winter
Origin: Japan















Death Star scenes currently don't look too different from the original Sega AM1 game

Running on the Model 3 Step 2 board, providing realtime CG graphics, AM Annex expects this latest reincarnation to have fans fighting in the aisles

With the digitally remastered cinema releases of George Lucas' seminal space epic reviving interest in the 'Star Wars' series and attracting a new generation of fans who missed it the first time around, Sega's newly licensed coin-op comes at a timely juncture for those fans eagerly awaiting the all-new episode due next year. And considering the Model 3 Step 2 board provides the realtime CG visuals for this shooting fest, there can be few doubts about just how much much pulling power this could have in arcades.

Oddly enough, the team working on the title is AM Annex, the creators of serious coin-op racers *Sega Touring Car* and *Sega Rally 2*. It is also the first project under the direction of **Kenji Sasaki**, following the departure of boss Tetsuya Mizuguchi who now heads up a consumer department dedicated to Dreamcast development. **Edge** was recently invited to play an early version running at the company's Tokyo headquarters and was able to quiz Sasaki-san, Takahiro Kakizawa and Motoshi Takabe about the game before its debut at the September JAMMA show.

"There are lots of consumer 'Star Wars' games but there are few arcade 'Star Wars' games," says **Motoshi Takabe**. "In most of these you only really have to destroy the Death Star and the game is finished. We included new scenes and we also based it on the trilogy and not just on one part of the series. Players will be able to enjoy the best scenes of the three movies before the new 'Star Wars' episode is introduced at cinemas in 1999."

A oneplayer shoot 'em up controlled by a force-feedback joystick, *Star Wars Trilogy* is primarily being designed to appeal to casual players in a similar fashion to the simple,



The rebel alliance, from left: Kenji Sasaki (who has recently taken over from the celebrated Tetsuya Mizuguchi), Takahiro Kakizawa and Motoshi Takabe



The sheer scale of the Death Star's trench scene will hopefully come across more effectively in this incarnation – courtesy of more (and faster) polygons. Meanwhile, these early scenes of the final Rebel assault on the Death Star (right) currently don't look too far removed from the original Sega *Star Wars* game



Cut-scenes of near-filmic quality are now possible with the Model 3 board – and in realtime, too

gun-crazed blasting of AM3's *The Lost World*. Despite playing as a Rebel member rather than controlling any particular character, such as Han Solo or Leia, you do get to fly or ride a variety of vehicles, including the X-Wings and Speeder Bikes, in scenes from all three movies. And the action even allows a spot of lightsaber duelling in a firstperson perspective.

Sega's last *Star Wars* game was a rather disappointing effort that used the now antiquated flat-shaded polygons of the Model 1 board. In contrast, the high-end visuals generated by Model 3 are considerably more sophisticated and this extra power has been welcomed by the developers. "Certain things were not even possible on Model 2 before, such as movie-like cut-scenes," adds Kenji Sasaki. Also, you couldn't use transparency effects properly and colour brightness was not as good as on Model 3. Only the Model 3 board can allow us to make what we want."

There are three main sequential stages, each containing different scenes from each movie, and while the action only lasts for a total of around 15 minutes, there are hidden events and – depending on the player's actions – the stages unfold in a number of different ways. It's a strategy that will ensure that casual players will immediately be able to get to grips with its gameplay, maintaining a fast turnover in US arcades which will be its main marketplace when it's released in the Winter. "The pressure is on to make a 'Star Wars' game better than any of our competitors," concludes Sasaki-san. "We have to find a good balance between keeping the basic 'Star Wars' environment and building a good game system. We cannot fail." Millions of potential fans are waiting in the wings...



The atmospheric Speeder Bike scene from 'Return of the Jedi' will provide welcome respite from space scenes

SPIKEOUT

AM2 LANDS THE FIRST PUNCH IN THE MULTIPLAYER FIGHTING ARENA

Developer: Sega (AM2)
Release: Out now
Origin: Japan







Four characters are available to choose from: Spike, White, Linda and Tenshin

As the popularity of the one-on-one beat 'em up incessantly continues, it's refreshing to see Sega at last creating a variant with multiplayer appeal. *SpikeOut* is the work of the team under *Daytona USA 2* producer **Toshihiro Nagoshi**. **Edge** recently entered the hallowed halls of Sega's AM2 department for an exclusive playtest of a 70 per cent complete version of this fourplayer title, and to speak to Nagoshi-san about what could be one of the last Model 3 games to be released.

Aside from its state-of-the-art Model 3 Step 2 visuals and the fibre-optically-linked cabinets, *SpikeOut* plunders ideas from a vast lineage of street-brawling beat 'em ups that include *Double Dragon*, *Final Fight*, and most obviously Sega's own *Streets of Rage* and *Dynamite Deka* series. Requiring an estimated minimum of 45 minutes to be cleared by 'expert players', four buttons allow players to punch, kick, jump and 'special attack' their way through 20 stages, with a *VF3*-style escape button also handy for tricky moments. Special attacks work by keeping a button depressed and filling up a gauge to four levels of power, while more complex combinations of attacks are also possible.

It's probably little surprise that singleplayer *SpikeOut* is a tough challenge compared to its cooperative play modes, and a timer countdown means that players must seek out enemies in the huge stages as quickly as possible. It's an intense experience, too, with its hi-res, beautifully detailed environments constantly packed with enemies and multiple boss characters. And with animation reminiscent of *Virtua Fighter 3*, there can be little doubt that this is a excellent-looking title that should win favour among fighting game afficionados.

But coin-ops of this calibre have a price. As each cabinet accommodates only a single player, linked-up bouts – something bound to prove popular in Tokyo's fervent arcade battlegrounds – will require multiple units which will undoubtedly prove prohibitively expensive for western arcade operators. While this could mean such set-ups will be rare, some of the UK's bigger arcades will already be eyeing up the coin-gobbling potential of what could prove to be a long-overdue change in direction for the beat 'em up.







There are three main stages in *SpikeOut* ('town, 'department store' and 'opera') including 20 different different sub-stages and multiple scenarios





Although weapons feature in *SpikeOut*, they're not essential in order to progress

TOSHIHIRO NAGOSHI, THE AM2 RACING SUPREMO BEHIND SPIKEOUT, TALKS TACTICS







Toshihiro Nagoshi was the driving force behind *Daytona USA*, its recent sequel, and *Scud Race*

Nagoshi-san took some precious time out to talk to **Edge** about his change of direction and the finer points of Sega's latest beat 'em up showcase...

Edge: Why did you make the switch from creating racing games to fighting games?

TN: I was getting a little bit fed up of making racing games, to be honest. I think I'd like to continue to make brand new games like this.

Edge: How did you find creating a multiplayer fighting game compared to something like *Daytona USA 2*?

TN: The multiplayer feature was actually difficult to implement. It was also difficult to deal with multiple enemies. With driving games I had already worked several times on a multiplay system, but this was the first time for me – and Sega – to work on a character multiplay system. It was very difficult to build a four-machine network. Also, because of all the character animation we were working with, a lot more data was involved than in something like *Daytona USA 2*, with just cars.

Edge: Why do you think it has taken this long for a 3D version of a game like *Streets of Rage* to appear? Is this a technology issue?

TN: Yes, it's a problem of technology but even more a problem of development time. Coming up with the idea was easy but you need to find expert programmers, artists, and modellers. Apart from Sega there are few companies able to make such a game in this industry.

Edge: SpikeOut takes 45 minutes of solid play to complete – why did you decide to offer such a long period of gameplay?

TN: An easy answer would be to say that it's not a fighting game in the classic sense. In most fighting games, the fights last about 20 seconds, or a maximum of 40 seconds... This time we've created a different genre, it is a 'collaboration'-play game. You are not fighting against the person sat next to you, but you collaborate with him against the CPU. You need other players to defeat the CPU. So we made some longer play and have used complex scenarios. We wanted *SpikeOut* to look like a movie and be as long as a TV program.

Edge: How difficult was it to design a cooperative 3D fighting system?

TN: Well, we had to make a system for single players and also one for collaboration with other players. But it was difficult. First we covered the character's direction. Then we implemented a priority system preventing more than four enemies from approaching the main character at the same time.

Edge: What about the control system?

TN: We wanted to make something simpler than *VF3*, and we wanted to use only three buttons. In *Virtua Fighter* you use the lever to jump and crouch. This isn't possible in *SpikeOut*. So we presently have four buttons: Shift, Beat, Charge and Jump. The Shift button enables players to move aside while facing the enemy.

Edge: What importance do the weapons have, exactly?

TN: There are different ways to use them, but they're not essential. You can use them or throw them at the enemies, but once you lose a weapon you can't use it a second time – the longer you keep it the better it gets. We put a number of them in different places which will help players complete the game. Personally, I don't like weapons that much, but we included them because it makes it more enjoyable.

Edge: Some of the animations look similar to *VF3*. Is this a coincidence?

TN: Not really. We used bits of *Virtua Fighter 3*'s animations and I doubt we could have made this game if it wasn't for *VF3*. However, the character design took a long time and we're using a third of the polygons per character we used for *Virtua Fighter 3*, although the characters aren't really that different.









***SpikeOut*'s character design is not unlike that of *VF3*, admits Nagoshi-san**

TECH-ROMANCER

CAPCOM HAS NEW DESIGNS ON THE JAPANESE MECHA PHENOMENON

Developer: Capcom (Arika)
Release: TBA
Origin: Japan

The weeks leading up to September's JAMMA show is traditionally the time when Japanese coin-op developers begin to introduce their latest titles by drip-feeding screenshots and information to the fervent Japanese press. Like many companies, Capcom has chosen to keep its more important announcements close to its chest until nearer the show – apart from this low-end coin-op designed almost solely for the mecha-crazy Japanese market.

Inspired by the popular *Macross* series, *Tech-Romancer* is a *Virtual-On*-style combat game that, unusually for Capcom, doesn't exploit any of its previous character-based heritage. Featuring 12 different robot types (including morphing, military and even retro and comical types), each with different pilots, *Tech-Romancer* offers two game choices in its oneplayer mode: a 'Story' and a 'Hero Challenge' mode. The former offers multiple scenarios, the path selected by the computer directly depending on the result of a fight, whereas the latter is a regular CPU Mode where players must defeat 12 different characters.

While the theme and content of *Tech-Romancer* is distinctly Japanese, it scores highly in visual terms with some impressive weapons that can be used from afar, coupled with tactics that are better employed close up.





The camera zooms out for long distance attacks (above) and homes in on close-up combat (top)







Also set for a PlayStation release, *Tech-Romancer* is a chaotic title to play. A full-on, spectacular missile attack such as this (left) is far from uncommon

A zooming camera captures this perfectly, as well as occasional moments when robots can use the sky as a battlefield. Polygon environments are also well constructed with a desert, a town and some particularly appealing night-time stages providing decent-looking backdrops for the mechanical brawling.

Tech-Romancer runs on a low-cost PlayStation-based board, which implies a conversion will be inevitable. Whether it'll make the journey across to western shores – either in coin-op or console form – has yet to be determined, but it'll at least make a change from Capcom's seemingly interminable stream of 2D beat 'em ups.





Stylishly designed robots equipped with big guns – what better recipe for a hit in Japan?





A low-end offering from Capcom, but visually impressive nonetheless

PC Engine

In the first of a series looking at the systems of yesteryear, Edge remembers the PC Engine, a system currently enjoying a renaissance thanks to emulation

The true worth of any format, as **Edge** has often expressed, can be gauged by the quality of its software support. And, although NEC's PC Engine was as blighted by gaming detritus as other formats of its time, it also offered an impressive catalogue of high-quality arcade conversions and original titles.

Despite the format's relative failure outside its native Japan – its US launch as the TurboGraphx-16 was an unmitigated disaster – it's ironic that the three major emulators currently available are written by European enthusiasts. And, while a number of its key titles are essentially rendered obsolete by *MAME*, which runs their arcade equivalents with eerie perfection, even a brief trawl through supported ROMs will reveal a number of long-forgotten gems.

David Michel's *Magic Engine* is currently the most advanced PC Engine emulator available. Although a registration fee of $35 is required for a fully functioning version, the current edition (V0.9) boasts wider, and more accurate, ROM support than many rival emus. With admirable sound reproduction, high framerates (even, say, on a 'modest' P133) and support for CD-based titles (for those who own the original software), Michel's program is a sound investment for enthusiasts. Those unwilling to part with the requisite lucre, however, will find *Magic Engine* an accomplished, yet rather muted emulator – the demo versions available as free downloads have their sound routines disabled.







HudsonSoft's *Wonder Boy* series reached a crescendo with the twee but tricky third instalment, subtitled *Dragon's Curse* (main). Coin-op conversions, including *Shinobi* (right) and *New Zealand Story* (top right), varied in quality

Magic Engine copes effortlessly with the likes of *R-Type*, *Wonderboy III* and Hudsonsoft's surreal *PC Kid*. Multiplayer gaming is catered for, and it's noteworthy that the gargantuan (20Mbit) *Street Fighter II Championship Edition* works reasonably well. Tantalisingly, provisional Supergrafx support is also provided, as a flawed but nevertheless impressive *Ghouls 'n' Ghosts* (running with some invisible sprites) attests...

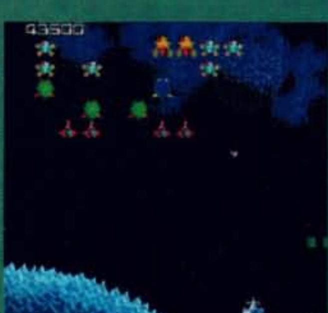
Other PC Engine emus, lamentably, fall short of *Magic Engine*'s formidable standard. *HU6280* is a freeware release that, while supporting a more than adequate amount of ROMs, is comparatively less impressive as a piece of coding. Currently blighted by poor refresh rates – even on a relatively high-specced machine – *HU6280* may well improve with successive updates, but for now is of dubious worth.

VCPE, or *Virtual PC Engine*, though still eclipsed by the benchmark *Magic Engine*, is a relatively sophisticated alternative. Running happily from Windows 95, *VCPE* offers decent framerates, basic (though grating) sound support and runs happily within a tiny window. Legal issues aside, emulators are the desktop toys of choice these days – and *VCPE*'s accessibility should lend it a wide appeal. Its simple front-end is a strong suit – a directory of available games opens from launch, and players merely select the required ROM. It's a simple concept, but one so often ignored by the majority of emus.

ROMs for all three emulators are freely available from a number of retro-oriented sites. And, as with any console or arcade board emulator, the legality of 'acquiring' such games from sites without actually owning the original media is very questionable. Morally and ethically, **Edge** can only say this: read those disclaimers carefully...



The TurboGraphx-16, US version of the PCE. Dire marketing saw the machine capture a marginal percentage of the 16bit market





The classic *Twin Tiger* (top) remains a great example of tight, well-considered gameplay. By contrast, *Galaga '90* (above) demonstrates that 'update' is often a misleading term. It's still perfectly playable, though...

Web resources
www.davesclassics.com
www.classicgaming.com

Wolfenstein 3D

This month sees a new landmark firstperson shooter arrive in the form of *Turok 2*, and it seems odd that the genre has come so far in merely six years. Edge looks back to the game that really started something











The rotating barrels of the chaingun (main) proved popular enough for the weapon to appear again in *Doom* and *Quake II*. By using bitmapped enemies, *Wolfenstein* was able to pack rooms with action (above right)

Ask anyone with a cursory knowledge of PC gaming history to name the most influential title of all time, and odds are that *Wolfenstein 3D* will be mentioned more than any other.

Id Software's seminal game is the natural ancestor of every firstperson shoot 'em up currently bloating the market, and stands out as the title that turned cut-down 'shareware' demos into valid marketing tools.

The concept was simplicity itself, and was an idea that had been flirted with (with relatively little success) ever since the days of 16K home computing: a realistic 3D environment to negotiate, and an ever-increasing arsenal of weaponry to play with.

Pre-*Wolfenstein*, claims to authentic firstperson 3D environments had proved disingenuous, and it fell to John Carmack (programmer) and John Romero (designer) to showcase the kind of fast and immersive game environments that were finally possible using a then state-of-the-art 386 processor. A Nazi-themed storyline provided a thread of historical realism to the proceedings, and, although now laughably primitive in comparison with its progeny, many elements of *Wolfenstein* have survived the years to appear as integral parts of almost every example of the genre: key collecting as a means to progression, tortuous mazes, a selection of both human and animal foes, and a complex control system that introduced strafing.

An immense technological leap from Apogee's previous shareware releases such as *Commander Keen*, yet retaining those titles' strong characters and sense of comic violence, *Wolfenstein* laid the PC's 'strategy and flight sims' reputation to rest, although it did lamentably pave the way for a plethora of substandard imitations.

To an audience not yet acquainted with polygons, the bitmap sprites were fantastic, and although still not 'true 3D' – jumping and looking in a vertical plane being absent – *Wolfenstein*'s fiendish level design and frantic action had singlehandedly created a genre that was to change the PC games industry for ever. A sequel, the less-well-received *Spear of Destiny*, followed, but it was not until Carmack and Romero created *Doom* two years later that the genre moved forward again.

Publisher: Apogee	1992
Developer: id Software	PC

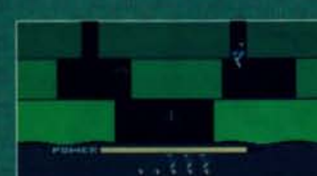
News

Edge's monthly retro news section kicks off with yet another clutch of lo-fi titles set for the PlayStation

Evidently eager to prove once more that it was publishing videogames back in the days when most of today's other big-name outfits were but far-off dreams, Activision is preparing a PlayStation compilation pack containing 30 of its crusty old Atari VCS titles.

The line-up features *Atlantis*, *Barnstorming*, *Boxing*, *Chopper Command*, *Crackpots*, *Dolphin*, *Dragster*, *Enduro*, *Fishing Derby*, *Freeway*, *Frost Bite*, *Grand Prix*, *H.E.R.O.*, *Ice Hockey*, *Kaboom!*, *Keystone Kapers*, *Laser Blast*, *Megamania*, *Pitfall!*, *Plaque Attack*, *Tile Match*, *River Raid 1 & 2*, *Sea Quest*, *Skiing*, *Sky Jinks*, *Spider Fighter*, *Stampede*, *Star Master* and *Tennis*. Of that weighty bundle, **Edge** can only pick out a handful of notables (*H.E.R.O.* being an obvious example), but the pack will surely appeal to frustrated fathers wishing to play their kids on what will be perceived as a more even keel in these times of joypads featuring more buttons than they have hairs left on their heads.









Clockwise from top left: simplistic platform action in *Pitfall*; exploration in *H.E.R.O.*; blasting aliens in *Atlantis*; vanquishing hotdogs in *Plaque Attack*

MPMAN Internet Audio Player

£400 Contact: World Com 07050 607078

In the future there will be no record shops or record companies, CD or cassettes. We're all going to download our music from the Internet instead. It's already possible to download MP3 music files on to a PC, and with the MPman, music fans can listen to tunes on the move as well. The MPMan is the world's first personal stereo to use flash memory – enough for 90 minutes of music – instead of tapes or discs. Sound quality is certainly up to MiniDisc standards, but since the memory isn't removable, constant visits to a PC for fresh tunes are inevitable. It's also questionable whether music fans want to listen to music this way, too – a recent survey showed that less than 15 per cent of them were interested in the Net as a music source.



Lovegety For Ladies/Men

¥2880 (approx. £13) Contact: http://www.geocities.com/tokyo/4014

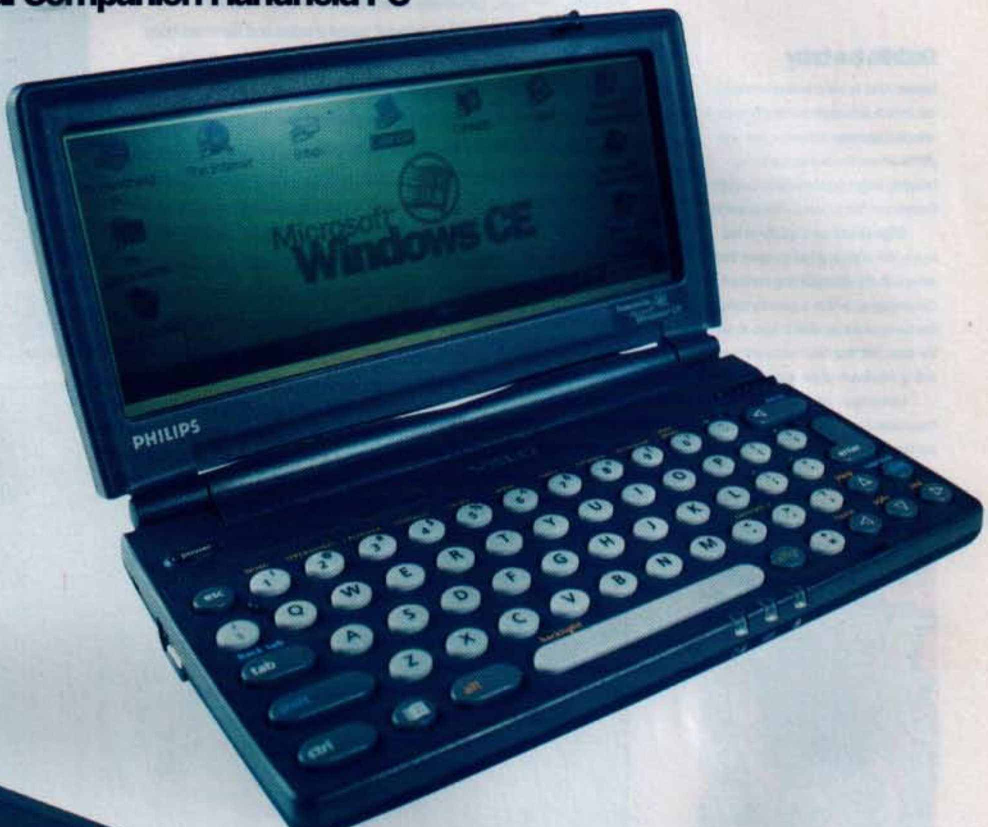
The average Japanese salaryman simply doesn't have time for a love life – he's too busy working or going on all-night karaoke sessions with his boss to get it together. The Japanese are also notoriously shy, making this latest gadget the perfect thing for those who haven't got the time, the ability or reservoir of repartee to pursue the opposite sex. The Lovegety is a white ovoid of electronics – colour-coded pink for girls, blue for boys – which is programmed according to a person's love interests – Talk, Karaoke or full-on shag frenzy (probably). Simply walk past a person with a Lovegety of their own and, provided they've picked the same interests, the device will start bleeping and flashing to show that there's a 'love' match. Completely useless over here, of course (unless everybody gets one). This year's Tamagotchi? Nah.



Philips Velo 500 Professional Companion Handheld PC

£450 Contact: 0800 961445

The Velo 1, Philips' first palmtop, was one of the best WinCE machines around – smart, quick and very user-friendly. One year on, though, and the palmtop market has moved on significantly, hence the 500 seen here. The new model now boasts a 75Mhz RISC processor – making it twice as quick as the original and faster than many rivals – and a monochrome screen with a 640x240 resolution. Other improvements include 16Mb of RAM (the original had 4) and a built-in 28.8Kbps modem. Most convincing is the price – £200 cheaper than the Velo 1.





Thomson Wysius Plasma Monitor

£13,500 Contact: Thomson Multimedia 0181 344 4444

This is the first flat-screen television to offer a complete home cinema solution, since the package includes a Thomson DVD player and Nicam VCR, an Onkyo Dolby Digital amplifier and a B&W Solid Solutions surround-sound speaker set. The 42-inch Wysius screen is based on NEC's PlasmaSync 4200W and comes with sufficient connections to hitch up a PC or games console. The Wysius' picture is certainly bright, sharp and detailed, although the cooling fans are noisy. The Onkyo is capable too, but the B&W speakers – five in all, including an active subwoofer – just don't do justice to the big screen's presence.

Monsters invade downtown Tokyo (again)

Japan: On July 18, a new wave of Pokemon fever engulfed Japan's consumer society when the Pokemon Center Tokyo officially opened for business. The store, exclusively dedicated to Pokemon-related paraphernalia, is designed in 'tasteful' pastel shades and rammed from floor to ceiling with dolls, model characters, drinking glasses, keyrings, records, etc. Slightly less obvious items of merchandise include an organiser (intended to help fans remember the names of the 150 monsters in the Pokemon universe), kitchen tools capable of making Monster-shaped cakes, and even a raincoat manufactured in the shape of Pikachu, Japan's favourite Pocket Monster. **Edge** was even able to procure a yellow, Pikachu-branded Game Boy during its visit.

Located near to the city's main train station, the Pokemon Center Tokyo has instantly become one of Japan's most popular novelty shops. **Edge** awaits the opening of a London branch with some trepidation.





Just *how* is it possible to create so many different types of paraphernalia related to only one theme to fill a store of this size?






Japanese Pokemon-heads face a bewildering variety of merchandise in the Pokemon Center Tokyo, including cuddly monsters, model-sized versions of popular creatures, and even rainwear fashioned in the image of Pikachu. The store's interior is light, airy and pastel-hued

Godzilla is a baby

Japan: After its initial limited-availability run (which saw eager punters flocking to selected Japanese cinemas – the only places where the devices could be bought), Sega's special-edition Godzilla Dreamcast PDA is now widely available.

Edge picked up a couple of the sturdy little units and has to report that, along with the disappointing standard of the packaging (which is patently tacky), the fun quotient on offer is lean, to say the least. Still, that hasn't stopped Sega selling shedloads of the darn things.

Here's hoping that the arrival of Dreamcast *Godzilla* (see p28) will bring out the device's potential…









Pokemon playing cards (far left) feature stats for 54 creatures, while this plastic Pikachu (left) sits in your hand and says his name in a squeaky voice while his cheeks glow red. What a very worthwhile consumer durable



The Game Boy *Pokemon* games available in Japan were created by the little-known outfit Game Freak





Nintendo spawned a monster

Japan: Nintendo has at last a product with which to entice Japanese gamers that have so far treated its 64bit dream machine with the kind of apathy normally associated with, say, a Rich Tea biscuit. Yes, *Pokemon Stadium* is out there on Japanese game retailers' shelves, with the custom 64GB Pak lumped in for free. This latter factor, of course, gives a potential audience of millions (Game Boy *Pokemon* cart sales actually run to nearly nine million), and initial shipments of the game sold out at neck-breaking pace, forcing retailers to order in replenishment stocks within days of the title becoming available.

Edge's comprehensive(ish) *Pokemon Stadium* tests have revealed the game to be, like its Game Boy predecessors, little more than a videogame version of Top Trumps with a twist. However, the experience certainly carries all of the classic Nintendo hallmarks. The development team responsible has, for example, done an absolutely remarkable job in re-interpreting the blocky Game Boy creatures in full 3D, giving them laugh-out-loud characterisation and a bundle of special effects to accompany their numerous styles of attack.

Although Nintendo has committed to bringing the *Pokemon* series of games to the US, **Edge** remains sceptical about the chances of them becoming anything like the success story there that they have proved in the east.

Still, who could ever have predicted the popularity of Lara Croft? Eh? Oh.



The 64GB Pak, in keeping with Nintendo's recent design initiatives with the Game Boy, is semi-translucent. It's another typically neat Nintendo add-on

Gone (electronically) fishin'...

Japan: As well as a Game Boy Light heavily branded with Pokemon imagery, **Edge** was able to pick up some rather unusual, non-Pokemon-related GB software this month.

Granda Musashi RV is a fishing game which comes complete with a plastic 'reel simulator' attachment that fits over the Game Boy's casing (once it's been assembled, Airfix kit-style, that is). After first choosing the perfect fishing spot, players can cast off and then tease their bait in front of waiting jaws in the hope of a bite. Striking is performed by pushing up on the D-pad; then it's a question of reeling like a dervish while trying to keep the Game Boy still enough for the screen to remain legible (not an easy task).

Next month: Game Boy *Origami World*.





Granda Musashi RV: perhaps not an ideal Game Boy title for the average train trip...

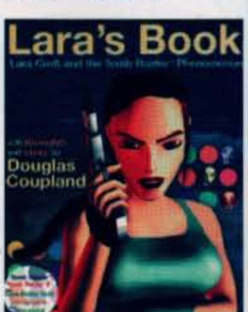
Sid's kid: Meier 2.0

UK: Sid Meier dropped into the **Edge** offices recently to show off his latest creation. No, not *Alpha Centauri* (**E**57), the long-awaited spiritual follow-up to *Civilisation*, but young Ryan Meier, his son. Meier junior explained the workings of *Alpha Centauri* to **Edge**, arguing with dad over everything from the best technologies to the merits of an FMV sequence involving cloned mice. Indeed, Ryan revealed another side to the Meier gene pool: aggressive tendencies. While Sid explained the benefits of diplomacy and agriculture, Ryan offered a markedly different solution: nuke 'em.



Lara on the coffee table

UK: Why anyone would find the need to purchase a book based around the collection of polygons referred to as Lara Croft is of some concern. It's more unsettling still that they would feel it necessary to acquire this particular tome. Offering little more than the numerous Ms Croft-dedicated Websites currently clogging up the Internet, 'Lara's Book: Lara Croft and the Tomb Raider Phenomenon' is a collection of renders, artwork, pseudo-philosophical ramblings, fans' letters and trivial facts regarding the top-heavy tomb-raiding aristocrat. In other words, a thinly disguised, shameless exploitative exercise aimed at the maladjusted teenage – and occasionally middle-aged – individuals who find lusting after a digital woman safer than the real thing. The production values aren't bad at all, but at £16 you'd expect them to be. So what's next? Boxes of Lara Croft-branded Kleenex?



Capcom's dead men keep walking

Japan: The *Bio-Hazard/Resident Evil* phenomenon reached new levels of visceral intensity on July 17 with the opening of Bio-Hazard Nightmare, an attraction based at Expo-Land, a theme park in Osaka.

Bio-Hazard Nightmare is a two-level building that visitors hand over the sum of ¥800 (approx. £4) to experience. Inside, a complex network of dark corridors and rooms hides a selection of (presumably 'resting') actors decked out in tattered rags and full-on zombie make-up.

During its promotional drive for the launch of the attraction, Capcom failed to make it clear whether or not visitors would be provided with shotguns…



Are you scared yet? Pity the poor fellows faced with applying this much make-up every day





Sega raises the odds

Japan: On August 4, Sega unveiled its latest wave of coin-ops at its annual Summer Private Show in Tokyo. Taking centre stage was a near-complete version of *SpikeOut*, running on four linked-up cabinets. Interestingly, *SpikeOut* cabinets come equipped with two enormous extra speakers, one situated each side of the player's head to emphasis the direction from which attacks are coming.

In terms of completely new titles, Sega's AM1 division demonstrated *Ocean Hunter*, a lightgun shooter utilising Model 3 technology. With some spectacular underwater 3D backdrops, the game throws bosses at the player in the form of a shark and a giant octopus. Sega expects the game to become as popular as last year's *Lost World*. The other debut attraction of note wasn't a videogame in the strictest sense at all, but a blackjack simulator, replete with a virtual dealer appearing on a giant screen. Gambling games are, of course, big business in Japan, and this latest interpretation, which doesn't even require players to press buttons (instead a photoelectric cell picks up hand signals – open hand for 'stick', closed for 'twist'), proved hugely popular at the event. English fruit machine addicts looking to step their habits up a notch shouldn't hold their breath waiting for a UK release.



"Twist – *no, stick*… Awww, bugger. Blackjack just isn't what it used to be."

US ads stop kicking ass

America: Videogame advertising in the States seems to be going through an intellectual renaissance at the moment. Until recently, US marketing departments seemed to think that filling a two-page spread with the words 'It rocks', 'It kicks ass' or 'It's awesome' would be enough to sell any game – and if that didn't work, Beavis and Butthead *double entendre* would do the trick (who can forget the early US PlayStation ad which announced 'If you still want a Saturn, your head is in Uranus'?). Now, however, lateral thinking and visual wit are very much in vogue. Good examples include Sega's *Burning Rangers* ad, which features a fireman nursing his burnt buttocks in a kiddie's paddling pool, and a recent *Banjo-Kazooie* two-pager based around little but a trail of bird tracks.

Elsewhere, more experimental techniques are being employed. The *ODT* example (below) looks as though it's been designed by some psychologically damaged modern artist, while *PaRappa* gets a bright, witty musical score (below right).

At last, then, intriguing and offbeat imagery no longer appear to be a problem to videogame marketers in the States. And let's face it, *all* of the examples here beat Jo Guest with a game box lodged between her legs.









Today's American videogame ads: sure to give Jo Guest cradling a game box between her thighs a fair run for her money, at the very least

Indoor fireworks

Japan: Fireworks during the Summer is a long-standing tradition in Japan, and videogame developers have finally picked up on this, the result being *Summer Fireworks: Hanabi*, a PlayStation title that simulates squibs, rockets and all manner of other potentially lethal incendiary devices ignited in the good name of entertainment. Despite a boring RPG phase, this is nevertheless a hugely effective package, and another example of the kind of originality so rarely seen in western videogame developments.





Fireworks, digital style: no real need to keep the pets indoors

AM2 gets hardcore

Japan: On July 30, Sega's AM2 division organised the Sega Hardcore Generation Party at Shinjuku Code, a nightclub in Kabukicho (an amusement district of Tokyo). With live acts such as Bloodshedder on stage, plus coin-ops such as *Virtual-On* and *Virtua Fighter 3* on free-play, the all-night party attracted techno-heads, groupies and AM2 fans. Some bloke dressed up as Sonic was conspicuous by his absence.





For a medium that is reputed to have only six basic plots, the novel has been doing well for the past 400 years. Strange, then, that one of its most recent offspring, science fiction, is suffering from childhood schizophrenia, unsure which medium of transmission suits it best.

Michael Marshall Smith has impressive credentials, including a Cambridge philosophy degree, and the industry is setting him up as a golden boy ready to take the cyber-novel that next step forward. Already he has received million-dollar options for the film rights to two of his three novels. It is, therefore, little surprise that 'One Of Us' reads like a script waiting for a Hollywood star to make it work.

Like Frankenstein's monster, 'One Of Us' consists of a choice selection of stolen limbs, stitched together in a somewhat unbalanced fashion. The skeletal frame of Gibson's 'Johnny Mnemonic' is propped within the carcass of a hard-boiled pulp-fiction and wired by the acerbic wit of the private dick. The finishing touches are a pot pourri of techno-iconography and a dash of religious epistemology. While it is a credit to Smith's breathless style that it reads as well as it does, a vital spark is missing. Too much has been taken for granted – as if all Smith could see as he started writing was the opening shot: a close-up of Bruce Willis.



ONE OF US
Author: Michael Marshall Smith
Publisher: HarperCollins • Price: £15
ISBN: 0 00 225600 2

Ever since albums down-sized from vinyl to cd, the art of cover art has been in decline. It is hard to imagine the dayglo-trashiness of the Sex Pistol's 'Never Mind The Bollocks' album having any impact when shrunk to the dimensions of a CD-friendly square. Much the same is true for computer game artwork. Look around the shelves and few images make any impression on the casual browser.

It is in this context that digital artists such as Steve Stone tread the line between commercial dullness and aesthetic pretension. While few will consciously know Stone's work, many will have experienced it in some form. From the artwork for *G-Police*, the re-issue of the 'Amtrak Wars' sci-fi series, and a selection of magazine work ranging from Skin Two to **Edge**, he has produced some of the most striking examples of today's digital art.

With a style that he broadly terms 'hard-core science fiction' (although 'techno-gothic' is closer to the mark), Stone is strongly influenced by the collision of fetishism with heavy industry. Indeed his most distinctive images revolve around the hybridisation of the female body and large-scale weaponry. This may not be to everybody's taste, and there is a suspicion that for a 3D artist the images are surprisingly flat, but his work, once seen, is seldom forgotten.



NEXUS DNA
Author: Steve Stone
Publisher: Archangel • Price: £14
ISBN: 1-892519-00-1



INTERNET
Site: Dave Perry's homepage
URL: http://www.dperry.com

Shiny Entertainment's president Dave Perry, the videogame industry's most tireless self-publicist, has finally got around to delivering what his rabid American schoolkid fans have no doubt always longed for. Chronicling his older work, including ancient Spectrum titles such as *Three Weeks in Paradise* and *Stainless Steel* (check out the Java-based Spectrum emulator on the site, which allows you to play them online – although it's walking-through-syrup slow on anything but a super-beefy machine), the site is a fairly typical promotional beast, reproducing speeches Perry has presented in the past and presenting a photo gallery, etc, but promises to include much more in the coming months (at present Perry claims the site to be only five per cent finished). The addition of Mr Shiny's thoughts on game design and the future should certainly ruffle a few feathers.

FAITHLESS
Sunday 8PM
(Cheeky Records)



Faithless have never been a band to do things the easy way. 'Sunday 8PM' is even harder to pin down than their last album, rapper Maxi Jazz looming larger, and the emphasis firmly on the introspective – the likes of 'Bring My Family Back' wrapping warm arrangements around the downbeat lyrics. The style shift may alienate some, but when the pace does finally hot up (as on 'Take The Long Way Home' and 'God Is A DJ') it's really something to behold.

UNKLE
Psyence Fiction
(Mo Wax)



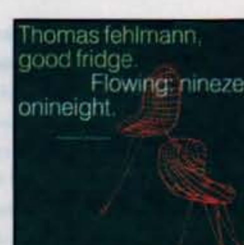
What was once a side project for DJ Shadow and Mo Wax boss James Lavelle has mutated into a multi-headed monster, with members of Metallica, The Beastie Boys, Radiohead and The Verve all appearing on this hip-hop epic. The wealth of samples and ghostly reverberation recalls Shadow's own 'Entroducing', but the instrumentation and song-based structures make it a very different beast. The combination of those ever-powerful hip-hop beats and vinyl scratching with strong guest vocals and healthy does of guitar is inspired, with the results just about living up to the hype that's surrounded this project for the last three years.

BEDLAM AGO GO
Estate Style Entertainment
(S2/Friendly Fire)



Bedlam aren't the first to bring a punk edge to dance music and they won't be the last. 'Northern Nights' sets the agenda, updating 'Babylon's Burning', while the infusion of dub, and samples from the likes of Gil Scott Heron and Velvet Underground ensure the sound comprises more than just guitars and a drum machine. Yet, as energetic as tracks like 'Paranoid' get, the sound never quite gels, and the one-mood, monotone rapping just becomes a pain.

THOMAS FEHLMANN
Flow '90-'98
(Apollo)



Orb collaborator Fehlmann's brand of electronica is as freeform as it is ambient, without ever abandoning beats or melody. As the title suggests, this charts the last few years of his work – and the tracks really do flow. It's this knack of making digital sounds so warm that makes this such a compelling collection, cuts such as 'Superfrustuck' bringing together the sort of post-Kraftwerk sound so beloved of European techno artists with a seductive organic edge, while later tracks expertly take the listener into sample-heavy territory. Excellent.

EXPRESS YOURSELF IN **EDGE** – WRITE TO: LETTERS, **EDGE**, 30 MONMOUTH STREET, BATH, BA1 2BW (email: edge@futurenet.co.uk)

After reading the Dreamcast specs I am now interested in buying it as my first console (after owning PCs for years). Although naive in playing console games, as an aspiring game programmer I pay a great deal of interest to software and hardware developments.

So I am praying that Sega doesn't mess it up again for my sake. It seems obvious to me that all they need to do to be successful is to give maximum support to the developer. What's the point of developing new libraries and discovering new techniques and then only allowing a select few to take advantage of them? The secret to a good game is to make the coding as easy as possible so that the developer can concentrate on gameplay and graphics. So, in theory, even lesser developers should be able to produce something of a reasonable standard.

There will always be substandard games, but by not restricting the console's accessibility to developers, a larger number will be able to develop top-quality games.

I would also love to see a programmable version of the console, like the Yaroze (but perhaps a little cheaper...).

Jay Gudgeon,
via email

Your magazine seems openly optimistic about Dreamcast's potential to win the next wave of console wars, but I'm not sure that there will be any big winners.

The impending situation seems to echo that of the change from 8bit to 16bit, in that newer technology simply meant better visuals, but not entirely dissimilar gameplay experiences.

The move to 3D, with the PlayStation and Saturn, served to invigorate a stagnating market and maybe even attracted new gamers who were left cold by old-style shooting, fighting or platform games (that even now remain largely unpopular to western tastes).

Dreamcast and PlayStation 2 are unlikely to excite the market in the same way. It is difficult to imagine that even a tenfold increase in polygon shunting will produce game ideas unattainable on current machines (albeit with less visual sheen).

Perhaps the next true leap for gamers will come with the next, next generation game boxes from Sega, Sony and Nintendo, utilising (cue groan)... virtual reality. However graphically detailed 3D worlds become, the fact that a gamer still has the detachment of viewing them on a 2D TV screen means they will never be truly immersive. I know that VR never really happened, but imagine, in perhaps five of six years' time, a machine with advanced NURBS-based rendering coupled with an improved Glasstron headset with motion-tracking capabilities displaying a high-definition stereo image. Now that really would be a revolution, as opposed to evolution.

John Bowen,
Northfield, Birmingham

'Newer technology simply meant better visuals, but not **entirely different gameplay** experiences. The move to 3D served to invigorate a stagnating market and maybe even attracted **new gamers**'

Let's just wait and see what the developers can do with Dreamcast before we turn it into God's favourite creation. If this machine, with its 128bit super-duper power, is to get an audience, it will need good gameplay, as seen in the likes of *Tomb Raider*, *Quake* and *Resident Evil*. Maybe developers think that we, the players, are stupid and just want to blast our way through everything, but some of us think that a good storyline helps to make the game more believable and fun to play.



Rare's *Diddy Kong Racing* is 'promoting stereotypical racism', says Girish Mekwan

Level design and textures are also an important issue. Good textures will make the terrain more realistic, but using a 'blur' effect often makes things worse and unrealistic. Take *Unreal*. On the second level, you step outside. Nice atmosphere, with fish, rabbits and birds. But I personally have never seen such a boring landscape before. Twenty-ton stones with eight flat surfaces? Everything was square or triangular. I certainly lost the feeling of being in another world, and on top of that, I also lost interest in the game. Now with all these polygons to throw around, maybe it should be possible to make some rough-looking walls and rocks, or maybe some swaying grass that you can leave footprints in. Making everything more realistic makes the game a whole lot better. Remember these things and you can't go wrong.

Gameplay, effective light source, story, lots of cut-scenes (very good to move story along, and it gives the player a sense of achievement), puzzles, less pull-lever-to-open door, more contrast in environment textures, more polygons for the surrounding environment.

Niels Thornberg,
via email

This letter comes from a 'suit', and is intended to provide clarification behind the real reason for *Bio-Hazard* becoming *Resident Evil* [see Viewpoint, **E**62].

Due to *Bio-Hazard* already being a copyright held by A. N. Other company we had to come up with another name in conjunction with Capcom.

Graeme Struthers,
Virgin Interactive

Thanks for the feedback, Graeme. And sorry for calling you a 'suit'.

Edge continues to surpass other publications in journalism and innovation for articles ('The Art Of Noise', **E**62), but your Jukebox Jury sparked shock as I filtered down the list.

The astounding music and sound effects of Square's *Final Fantasy VII* are leaps and bounds ahead of its competitors.

The creation and composition of Nobuo Uematsu is a masterpiece and, to date, it is the only 4 CD set soundtrack of a videogame I am ever likely to own.

Until *FFVIII*.

Neil David Grace,
via email

It was a sample ten from hundreds of **Edge**'s favourite soundtracks. Would you really have had the inclination to read an **Edge** Top 100, even if there was space to run it?

I'd like to clarify one thing about the article in which I was quoted on character animation ['More Human than Human'] in **E**61:

Consistency is the goal of physical simulation for computer games, not realism. Realism can be had as a subset of consistency if it's desired, but the important thing is that everything in the game environment work like the player expects – within the self-consistent rules of the game – so the player's suspension of disbelief isn't violated. As soon as the player goes into a room and only a third of the objects work (and the rest are just eye candy), the player remembers he or she is 'just playing a game' and we game developers have lost. A complete world simulation will prevent this. It doesn't matter if gravity is a realistic 9.8 m/s, it just matters that the player can't break the world or find the guy behind the curtain pulling the levers.

Chris Hecker,
definition six, inc.,
www.d6.com

Congratulations to all involved in the creation of your magazine and in particular the article 'More Human than Human'.

This article's content could represent the shape of things to come as the polygon era begins to draw to a close.

Imagine playing a future version of *Resident Evil* using subdivision surfacing with MEL, your agent physically sweating as you run through a photorealistic city tripping and injuring yourself as you hit objects, and panicking as you see realistic zombies with advanced AI learn from your gameplay!

This level of realism will ultimately complete the missing link between interactivity and passive gameplay. After all, shooting at low AI, polygon-based enemies never really gives you that sense of conviction it deserves.

Let's hope the PlayStation 2 and coders can address some of these issues in the future.

E Warner,
Hampshire

Zombies with advanced AI? Perish the thought.

'Imagine playing a future version of *Resident Evil* using **subdivision surfacing** with MEL, your agent physically sweating as you run through a photorealistic city tripping and **injuring yourself** as you hit objects'

Developers seem to be obsessed with 3D, leaving 2D behind. I remember the days of 2D gaming well (the memories came flooding back after reading the 'First Among Emus' feature in **E**60), with titles such as *Streets of Rage*, *Castlevania* and *ESWAT* for the 16bit machines. Some games work when it comes to 3D but some don't. The *Bomberman* series now comes in 3D form, which I don't think does the business. Two-dimensional games are slowly dying off and the industry is full of jerky, average-to-crap 3D games.

There's proof that 2D works, so developers shouldn't kill it off by flooding the market with jerky 3D games which mostly appear on the ageing PlayStation. It's time for a change, Sony. The future of gaming is not 3D. Two-dimensional games are important because they offer something different, especially when it comes to gameplay – which is the most important factor.

I hope that developers will keep 2D gaming alive in the future. Dreamcast versions of *Streets of Rage 4* and *ESWAT 2*, for example, would be excellent.

Gary Osbourne,
Middlesbrough

Hmm. Can't see many people agreeing with your 'future of gaming is not 3D' assertion, but there's certainly a great deal of worth in not forgetting classic 2D gaming values. **Edge** already has a feature planned.

Isn't it strange that all three major players (Sony, Nintendo and Sega) have some sort of key event in November? Nintendo has *Zelda* all set for a release on the 23rd and then *Final Fantasy VIII* is due the same month. To top it all off, Sega has Dreamcast and (hopefully this time) a killer launch game on the 30th. Competition sure is a healthy thing!

Jason Newton,
via email

In light of the last two games from Rare, *Diddy Kong Racing* and *Banjo-Kazooie*, I'd like to point out that the largest games company in Europe is promoting stereotypical racism.

The characters – Taj in *Diddy Kong* and the snake charmer in the pyramid of the desert level in *Banjo-Kazooie* – both speak with clichéd Indian (Asian) accents (even though the snake charmer is supposed to be Egyptian), which I find hard to stomach in this day and age. Frankly this is a little disturbing as a lot of Asians play videogames and buy Rare products.

There are also many Asians and African/Caribbeans working in the games industry (such as myself), and to see this type of content in games is frankly just bad taste and offensive. To say that it's just a little light-hearted fun is like saying Jim Davidson's Chalkie jokes weren't offensive.

The two games I've mentioned are both excellent, but hopefully Rare will refrain from such cheap insults at the expense of others in their future releases.

Girish Mekwan,
via email

Over to you, Rare...

Edge has already revealed crucial information concerning VM Labs' Project X technology, yet the full story remains under wraps. Next month Edge speaks to the creators of this bold new enterprise about their ambitious plans for the future. Should Sony, Sega and Nintendo be running scared? Or is Project X merely another 3DO waiting to happen? Edge will provide the answers to these questions and more.

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